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Center for Applied Business Research

Graduate School of Business Administration

Duke University
Durham, North Carolina

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A MULTI-YEAR BUDGET GENERATION PROGRAM FOR USE IN NAVY RECRUITING: A User's Manual

October, 1981

Principal Investigator: Richard C. Morey, Ph.D.

Associates: John M. McCann, Ph.D.
David P. Robinson, Ph.D.
Varsha Rao

CENTER FOR APPLIED BUSINESS RESEARCH

FUQUA SCHOOL OF BUSINESS

DUKE UNIVERSITY

DURHAM, NORTH CAROLINA

(919)684-2012

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EXECUTIVE SUMMARY

This Program can be helpful to the Naval Recruiting Command in generating Budget requests for a single or multi-year scenario. Two versions of the Program, utilizing a non-linear optimization technique, are available at the Recruiting Command Headquarters: one for dealing with requirements related to accession quotas and the size of the Delayed Entry Program for male, High School Graduate recruits and the other for dealing with male, Upper Mental High School Graduate recruits (Upper Mental refers to Mental categories I-III Upper). In both cases we are referring to non prior service, and to the total of so-called reservists plus Regular Navy (i.e., those accessions for full time active duty regardless of their term of obligation).

The Program's principal inputs are: accession quotas for each year, the size of the Delayed Entry Pool desired at the end of each year, the annual costs of a recruiter, and key demographics related to the number of male High School seniors, pay ratios, and general unemployment scenarios. A host of other demographics related to size of labor force, property, percent black, urban-rural breakdowns, etc. can be entered also. If these are not entered, the Program still runs but with the actual levels for FY79.

The chief outputs are: the minimum dollars by year (in the dollars of the year of interest) needed to meet the given accession goals and DEP requirements; the partitioning of these dollars into advertising and

recruiter expeditions; the "optimal" number of recruiters in each of the six Recruiting Areas; the "optimal" geographical mix and timing of advertising expenditures; the optimal flow of enlistment contracts over time and geographically; the optimal flow of accessions geographically and over time.

The Program takes into account a set of initial conditions, at the beginning of the horizon, related to the size of the initial DEP and its distribution geographically, and the levels of recruiters and advertising prior to the start of the horizon. It incorporates: attrition*; the empirical delay factors associated with the Delayed Entry Program; lagged effects of recruiters and advertising effects; the diminishing returns nature of advertising and recruiting efforts; and the separate impacts of demographics. It is built on the results of extensive econometric analyses which yielded very close predictions (4% - 7%) when applied to a separate year of data. Results are included which show the real results for FY79 compared to the "optimized" results.

The multi-year capability automatically takes into account the strong coupling or interaction effects between years due to the changing DEP position and the lagged effects of recruiter and advertising efforts. The Program calculates for the first year of the multi-year horizon the minimum costs to meet given accession quotas and a DEP requirement for the first year. The user must input initial conditions for the first year only. The ending conditions for the first year then automatically become the initial conditions for the second year so that the Program continues in this

* This refers to shrinkages occurring in the Delayed Entry Program whereby individuals sign an enlistment contracts but then subsequently change their mind and never become an accession. This shrinkage is estimated to be about 4.5%.

leap frog manner. The user can easily vary the accession and DEP goals for each year, the demographics, and the economic scenarios. A detailed illustration for a two year horizon, together with all the inputs and outputs, is included.

The user should be aware of two considerations in interpreting the results: the assumed annual costs per recruiter (including his support) is an input that can be easily modified and could use more definition. The runs illustrated for FY79 and FY80 have used a cost of $26,009 (in FY79 dollars). Hence the user needs to be cognizant that,if he wishes to include retirement benefits, etc.,this annual cost per recruiter figure needs to be increased; a higher annual recruiter cost will change the recommended mix of this resource versus that of advertising. In the same vein, the advertising costs now being outputted are only the placement costs and do not reflect any overhead, copy generation, profits, etc. The Program can easily accept such factors once they become available. When these overhead type costs are entered, the optimal mix of recruiters efforts versus expenditures will also be affected.

In summary the Program represents a powerful tool to defensibly explore the dollar impacts of varying quotas, DEP positions, demographics, economic scenarios, cost per recruiter,attrition, etc., in a multi-year setting. It has been used by the Navy for the past two POM cycles and shown to yield results which are very reasonable and intuitive. It can be of substantial aid in the Navy's goaling process, in tactical decisions regarding reallocation of efforts to minimize shortfalls (using the Program's so-called Budget Execution Mode), and in providing inputs to better manage and provide

goals for the Navy's Delayed Entry Program. The reader is referred to another report by this Principal Investigator entitled, "A Goal Setting Procedure for the Navy's Delayed Entry Program," (October, 1981) for the use of this Budget Program in this context.

1.0 OBJECTIVE OF MULTI-YEAR BUDGET GENERATION PROGRAM

This program has the objective of estimating the minimum dollar budgets needed by fiscal year to obtain 1) prespecified levels of male, non-prior service, active duty (Mariners plus reservists), High School Graduate shipments by year; 2) given DEP requirements for the above category of recruits at the end of the given years. This is accomplished for each of the specified fiscal years, and recognizes the interactions operating between years due to the DEP positions and the lagged effects of advertising and recruiters' efforts. In addition to this important multi-year capability, the Program can also of course be run for a single year. The user will also have the option of concentrating on Upper-Mental High School Shipments by year (instead of High School Graduate Shipments) if he desires, Upper-Mental being the categories I-IIIA. Hence to illustrate, if it is desired to generate the budgets for FY82 and FY83 (in say FY81 dollars), one needs the following types of information:

i) The yearly quotas on shipments (of either of the above type) for each year. This quota can be accepted in several different forms to be discussed subsequently;

ii) The desired size of the Delayed Entry Pool <u>for this same type of recruit</u> for the end of FY82 and FY83;

iii) The scenarios for FY82 and FY83 related to the number of male High School seniors and the general unemployment rate. These are needed by Recruiting Area (of which there are 6) and by month for the fiscal years of interest. (If these are not specified, the Program will default to the values present for FY79 which are included in Appendix A.)

iv) Any other changes from FY79 for the following demographics: propensity to enlist, labor force size, ratio of military pay to civilian pay,

racial mix and urban-rural mix. Once again if no new values are desired, the program by default utilizes those for FY79. These are included in Appendix B. It is not as necessary for the user to modify these later demographics as it is for male High School seniors and the unemployment rates as the production of quality contracts is not as sensitive to the latter demographics.

v) The estimated size of the Dep position <u>for the type of recruit of interest</u> at the beginning of the decision horizon (in this case FY82).

vi) The assumed yearly cost for a recruiter and some initial conditions (for the two months prior to FY82) related to the number of recruiters in the field, and the levels of advertising expended.

The Program then generates by fiscal year, taking into account the strong interactions between fiscal years (related to the lagged effect of recruiters, and advertising on obtaining quality contracts) the following:

i) the minimum total budget required for each fiscal year;

ii) the optimal split between recruiter activity and all advertising expenditures;

iii) the number of recruiters in each area;

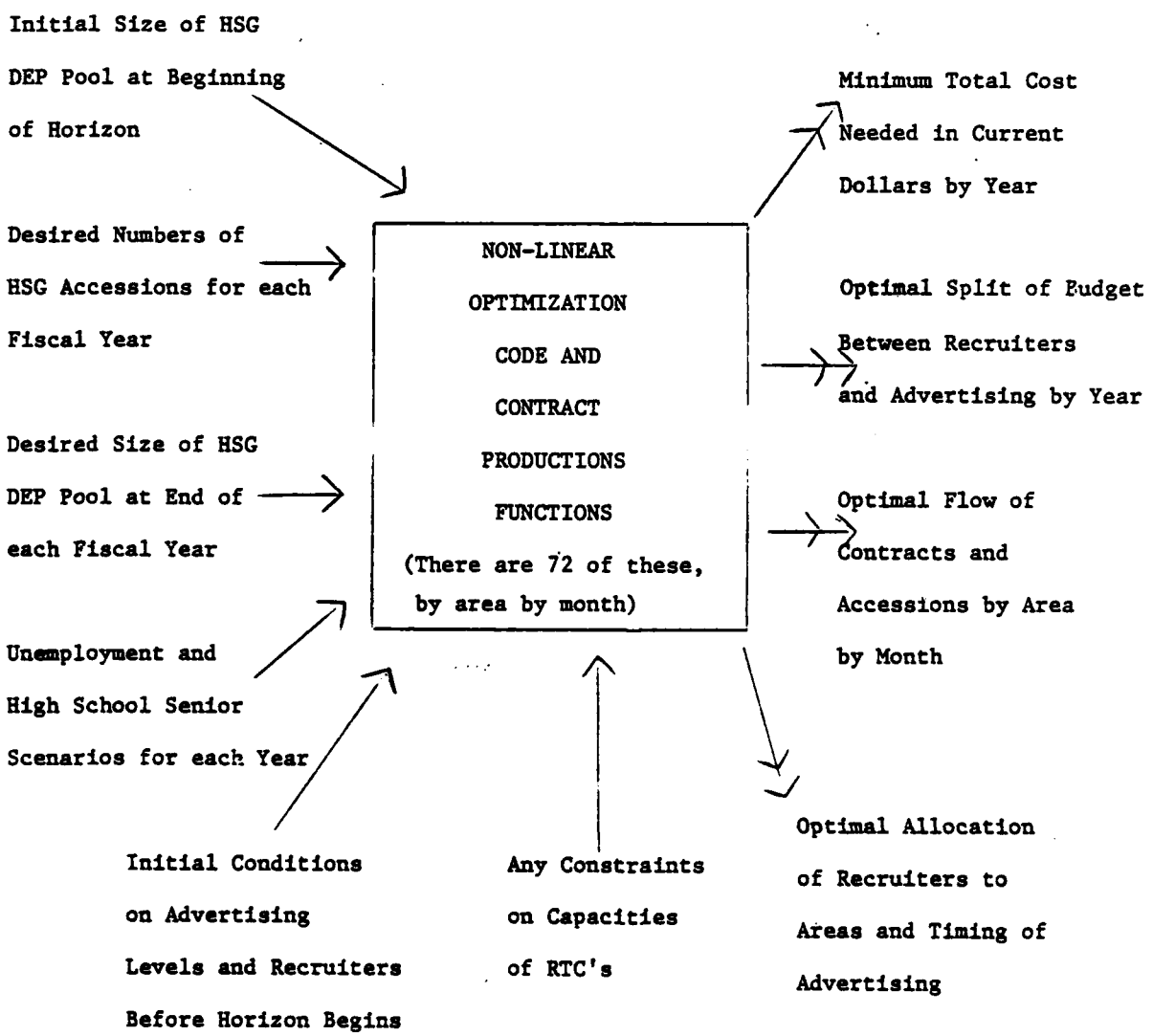
iv) the level of advertising by month by area;

v) the estimated flow of contracts and shipments by area by month.

The advertising cost can include not only the actual placement costs, but also overhead costs, fees for the advertising agencies, copy generation, etc. if these are known. It does not include any JADOR expenditures. These overhead costs are not known at the moment but the Program has been designed to incorporate these factors once they are known. In the meantime the advertising costs developed are the placement costs only. Figure 1 summarizes the inputs and outputs of the Budget Generation Program.

OVERVIEW OF MULTI-YEAR BUDGET

GENERATION PROGRAM



2.0 GENERAL METHOD OF ATTACK.

It accomplishes the above through the use of a non-linear optimization program which involves some 216 variables per year dealing with levels of recruiters and advertising for 6 areas over 12 months. For more details the reader is referred to an earlier ONR report, "Budget Allocation and Enlistment Products Models for the Navy's Recruiting Command: The Proper Balance Between REcruiter and Advertising Efforts," May 1979. The crux of the program is a set of 72 non-linear production functions which depict the numbers of quality contracts attained by Rectuiting Area and by month, if various resources are allocated to it at given points in time. These productions functions were developed based on extensive regression analysis for the years 76-78 and have been validated and shown to yield within 3% of the actual national totals for FY79. The fit of the productions functions over the 6 Areas is also quite good (an average absolute error of 7%)and incorporate key demographics for each Area such as its unemployment rate, percent black, the urban rural mix, etc. The fit could be improved even further if one desired to capture differences in actual recruiting efficiencies across the Areas. However, this has not been done since "efficient" areas might then be penalized by being allocated higher quotas. The user need not concern himself with the elasticities for recruiters and advertising nor their lags as these are "hardwired" into the Program. For information sake, the long run elasticity being used for recruiters is .7267 and for all advertising, it is .0561.

The computer program for the optimization system is based largely on the MINOS (for Modular In-core Nonlinear Optimization System) code developed by Michael Saunders of Stanford University. Detailed information

on MINOS is provided in the MINOS User's Manual and the MINOS System Manual which are provided with this user's manual. It is not necessary for the user of the allocation model to have much knowledge of MINOS, however, so these two documents should be regarded as additional reference tools.

The rest of this document describes the system inputs and outputs in more detail. These values are read and written by a set of modules which are not part of the MINOS system and hence are not described in the MINOS manuals. The user should refer to the MINOS documents for system problems arising in the optimization phase of the model.

3.0 INPUTS TO THE PROGRAM

3.1 General

There are three basic input files which the user needs to be aware of in order to exercise the Program. The first is what we shall term the scenario file. It contains label cards containing the various demographic inputs, by Area by month, for each of the Fiscal years of interest. The first two items deal with the male High School senior population and the unemployment rate. The others are the other 5 demographics mentioned earlier. If the user chooses to enter nothing on a given label card, the Program will default to the levels existing in FY79 (see Tables 3 and 4 of Section 4.0).This scenario file is used to contruct the 72 non-linear contract production functions, for each of the fiscal years, to be to be manipulated in the optimization. These 72 non-linear production functions capture differences in the number of quality contracts that would be obtained, across different areas and different months, if the same stream of recruiter resources and advertising resources were expended.

If it is desired to make a 5 year run (the maximum presently allowable) and if only 2 years of scenario data are included, the Program automatically utilizes the second year's scenario for the third, fourth and fifth years.

Consider now the other inputs to the "Scenario" File. They include:

i). Quotas for High School Graduate Shipments (these include GED's and are slightly differant than High School Degree Graduate Shipments).

The quotas on High School Graduate shipments (or alternatively on upper Mental High School Graduate Shipments) for the years in question can be presented in one of three ways:

a) a single number representing the annual, national quota for the year in question. If this number is used, then one might also wish to include upper bounds on the number of these shipments that one would be willing to accept in any given month; presumable this is derived from the capacities of the Recent Training Centers. If no bounds are input, the Program defaults to a "no bound" case.

b) twelve monthly, national quotas, representing the levels of shipments required by month from the entire country for each year. (It should be noted that the use of monthly quotas, rather than a national, yearly figure, will result in a higher minimum budget since the model is more constrained in how to most economically meet the quota.)

c) 72 area-monthly quotas, for each year representing the level of HSG shipments desired by month from each of the 6 areas. Clearly this represents the most constrained scenario of the three and hence would result in the largest budget required. This third possibility allows the user to include quotas developed from an outside source such as the Navy's Goaling Model.

ii) Assumed Monthly Cost for a Recruiter

One of the key inputs is the assumed monthly cost for a recruiter, including his support cost, i.e. auto, telephone, clerical, benefits, etc. It is important to stress this number must be entered in 1967 dollars since all the production functions were derived using 1967 as the benchmark year for purchasing power. It is also important to understand how RAD (recruiter aid materials dollars) have been handled. Since it was not known when RAD materials were actually distributed in the field, it was assumed in the statistical analysis that their impact varied directly with the number of recruiters actually in the field. Hence it is appropriate in the budget allocation effort to include a prorated portion of the RAD expenditures in with the montly cost of a recruiter.

To illustrate these ideas consider the development of the dollar figure used in the FY79 benchmark run for the monthly recruiter cost, the strong recommendation being that much more work needs to be expended by the Recruiting Command to decide which cost elements to include, i.e. retirement, fringes, direct pay, etc. To illustrate, consider the appropriate computer input to the Program if one were interested in FY79 and when the yearly cost/recruiter (in FY79 dollars) was known to be $26,009. Since the average inflation factor for FY79, relative to 1967 was 2.039, one arrives at an inflation adjusted, monthly recruiter cost of $\frac{\$26,009}{12 \times 2.039} = \$1,063$. Hence this is the number, namely $1063, to be input by the user for FY79 if he feels that the annual cost of a recruiter, including support costs, is $26,009 in FY79 dollars.

For the record this number of $26,009 for FY79 was based on cost estimates of $21,190 for a recruiter in 1976. This number was inflated to 79 dollars and a prorated portion of RAD dollars actually expended in FY79 added. (The total RAD expenditures in FY79 were $3.799 million and

the total number of recruiter man-years actually used was 3,405. Hence a prorated yearly cost per recruiter for RAD materials is $\frac{\$3,779 \times 10^6}{3,405} = \$1,104$ (in FY79 prices.)

If a higher figure is included, the optimal number of recruiters will decrease and more advertising expenditures will be warranted.

iii) Inflation Considerations: In What FY Dollars is Budget Desired?

Assume that one desires to exercise this Program for the FY82, and that in preparing the budget request one desires the dollars to be estimated in FY81 prices. Then one needs to input the inflation factor for FY81, relative to 1967 prices. As an example this number is 2.039 for FY79. Hence if one desired to develop the minimum budget for FY82 in FY79 prices, one would use 2.039 as the factor and state the results in terms of FY79 prices. In the multi-year use, the dollars reported would utilize only one inflation factor so that all of the budgets generated would be in constant dollars for some base year.

iv) The Desired Size of the Delayed Entry Pool (for the entire country) at the end of each of the Fiscal Years of Interest. Hence if the model is run for 2 years, then two dep pool targets are needed. It is important to stress this number is for male HSG, recruits, non-prior service (active Mariners plus reservists) and not the total size of the DEP pool.*

This capability allows one to assess the cost impact of shrinkages or increases in the DEP pool and to make tradeoffs regarding e.g., building up more DEP in one fiscal year to help meet high quotas in some outyear. Given the diminishing return nature of advertising and recruiters efforts, it becomes economically attractive to attempt to smooth large variations in the year-to-year quotas.

*An alternative version of the Program is available for Upper Mental HSG shipments, quotas, and DEP targets.

v) The Initial Size of the Delayed Entry Pool at the Beginning of the Horizon

One of the key inputs relate to the initial size of the Delayed Entry Pool at the beginning of the horizon. It is important to stress that this quantity is to be given for the particular type of recruit being studied, i.e. male, non-prior service HSG recruits, or male, non-prior service, upper mental High School Graduate Recruits in the alternative version of the Program.

Hence, to illustrate, the estimated number of contracts designated as High School Graduates in the Delayed Entry Pool as of October 1, 1978 (i.e. the beginning of the FY79) was 10,833. These individuals, less any attrition while in the pool, (estimated to be about 4.5%) will be available to help meeting shipping quotas for FY79. The Program automatically phases in the shipments over time from the Pool to offset the actual shipping quotas.

These factors were based on a detailed analysis of what actually occurred for FY79, taking into account the size of the pool at the point in time of October 1, 1978, the changing size of the DEP program by month, the number of contracts being signed and the number of accessions by month. The 12 factors "hardwired"* into the Program which spread the Pool over the next 12 months are:

Table 1

The Shipping Proportions (Adjusted for Attrition) for Those in the Delayed Entry Pool at the Beginning of a Fiscal Year Who Actually Ship

October	30.1%
November	13 %
December	10 %
January	8.1 %
February	4.3 %
March	7.2 %
April	2.9 %
May	3.0 %

*There are a number of factors such as these, which the user typically will not need to be concerned with, which are contained in the so-called base file which can be modified on a periodic basis or whenever better information becomes available. These are discussed in Section 3.

June	16.4%
July	2.8 %
August	2.0 %
September	.2 %
	100.0%

If it is also desired to utilize monthly area quotas, it is necessary to breakout the initial HSG DEP pool by Area.

vi) Initial Conditions: The Levels of Advertising and Recruiters in the Two Months Prior to Fiscal Year of Interest

The regression analyses have shown that recruiters and advertising have lagged effects so that the levels of Advertising and Recruiters in August and September , can affect the number of quality contracts obtained in the following months. Hence the Program can accept for the August and September months before the decision horizon of interest by Area: i) the number of recruiters present, ii) the level of Classified Ads and iii) the level of all other Advertising. If these values are given, the Program will automatically modify the production functions in subsequent months to reflect these initial conditions. If no values are included, it will assume the values were the same as in August and September of 1978, prior to FY79. These were the following:

TABLE 2

Number of Recruiters Present (Initial Conditions for FY79)

	Area 100	300	400	500	700	800	TOTAL
Aug. '78	667	575	639	489	408	637	3,415
Sept. '78	649	574	634	491	414	626	3,388

Dollars of Classified Ads Spend (Initial Conditions for FY79)

	Area 100	300	400	500	700	800	TOTAL
Aug. '78	22.5K	19.6K	30.1K	19.6K	16.3K	24.9K	$133K
Sept. '78	22.5K	19.6K	30.16K	19.6K	16.3K	24.9K	$133K

Dollars of All other Advertising Spent except JADOR (initial Conditions for FY79)

	Area 100	300	400	500	700	800	TOTAL
Aug. '78	78K	27K	63K	42K	32K	40K	282K
Sept. '78	88K	70K	92K	74K	61K	71K	456K

vii) Any Upper Limits on the Number of Quality Accessions that can be Accepted by Month

The Program can accept upper bounds on the total number of quality shipments that can be accepted in any given month. These constraints reflect any capacity limits of the Recruit Training Centers. If no values are input, the Program defaults to a very high number so that in effect there is no limitation.

The second basic file is called the problem control file and deals with the number of years in the run, the type of run, i.e. budget generation, or budget execution, and the types of quotas of interest. To elaborate the program can be used in one of two modes: 1) to build the minimum yearly budgets required to meet given quotas on quality shipments and given terminal DEP pools, or 2) execute actual given budgets, one for advertising and one for recruiters, so as to minimize any shortfalls from a given set of quotas and DEP requirement. In terms of the quotas the user can focus on i) a single national, yearly quota, ii) 12 monthly, national quotas of iii) 72 area-monthly quotas. The terminal DEP requirement is a national one. The choice as to which type of quota is the focus is accomplished thru the use of different weighs in the Program's objective.

3.2 Special Inputs for Budget Generation Mode

Consider first the budget generation mode, where the emphasis is on meeting, for each of the years in the decision horizon, national, yearly

quotas and terminal DEP requirements for each year. In this case the weight put on any monthly-national quotas, or on any area-monthly quotas will be zero. The only components of the objective function having any weight are those associated with the national, yearly quota, the final DEP requirement, and the so-called excess budget. The Program requires a gross upper bound for recruiter cost (in 1967 dollars) as well as an upper bound on advertising cost (in 1967 dollars). By putting large weights on the national quotas and the terminal DEP requirement, relative to that for the excess cost (i.e. weights of 1 for both the quotas and DEP requirements versus a weight of say 10^{-2} for the excess budget), the Program in the spirit of goal programming will first meet the quotas and DEP position and then minimize the cost to accomplish this. Detailed examples follow in Section 6.

If it is desired to generate the minimum budget to meet predetermined monthly, national quotas or even predetermined area-monthly quotas, as well as a final DEP requirement, a weight of 1 should be put respectively on the monthly quotas or the area-monthly quotas, a weight of 1 on the final DEP requirement, and a weight of 10^{-2} on the excess cost. The total minimum cost for meeting preset monthly quotas will in general be much larger than the cost resulting from utilizing a national, yearly quota. This follows since in order to guarantee that preset monthly or area-monthly quotas are met, the Program must allocate dollars in a manner so that the number of monthly shipments actually exceeds the monthly quotas. Any excesses over and above the monthly shipping requirements have cost money but are not able to reduce the monthly shipments quotas needed in later months. Possibly by trading off the weights or priorities given the national yearly quota versus that associated with meeting monthly shipping quotas, one can arrive at a satisfactory tradeoff.

To minimize these types of complication, it is strongly suggested that any budget generation runs utilize national, yearly quotas and terminal DEP requirements.

3.3 Special Inputs for Budget Execution Mode

Suppose instead that one is given the budget that one has to work with for a single year, together with any national yearly quota and a final DEP Requirement. Suppose one wishes firstly to minimize any national shortfall on the quota and secondly, to minimize any shortfall from the terminal DEP requirement. Then, one enters the pre-specified budgets (one for recruiters and one for advertising in 1967 dollars). Then one puts a large weight on the national yearly quota (say 1), a somewhat smaller weight on DEP requirement (say .1), and a small weight on any budget excesses. Then the Program will not spend more than the imposed budgets and will do so so as to first minimize the quota shortfall, and secondly to minimize the terminal DEP shortfall. If it can keep both shortfalls to zero within the alloted budgets, it will then minimize the amounts of money actually needed to accomplish this.

4.0 FACTORS USED BUT NOT INPUT BY USERS

There are a number of factors that are "hardwired" so that the user need not be concerned with them. These can be changed by entries to the so-called base file on say a yearly basis. These include, i) the earlier mentioned elasticities for recruiters and advertising and their lag patterns; ii) the factors which spread the DEP pool available at the beginning of the horizon over the next 12 months, iii) a 13 x 12 matrix called the delayed entry factors which is used to convert HSG or upper mental HSG contracts signed during the year to shipments or to the terminal DEP pool. This third is a matrix which depicts the proportion of enlistments signed in one month

[1]The conversion factor e.g. from FY79 dollars to 67 dollars is to divide by 2.039.

TABLE 3

Male High School Senior Population and General Unemployment Rate for FY79

	Area 100	Area 300	Area 400	Area 500	Area 700	Area 800
No. of male High School Seniors for FY79	332,635	235,593	323,173	284,639	190,720	251,069
Monthly Unemployment rate						
Oct. 78	6.48%	5.56	4.90	4.01	4.45	5.54
Nov. 78	6.25	5.14	5.31	4.13	4.96	5.82
Dec. 78	6.06	5.28	5.42	4.50	4.88	5.97
Jan. 79	7.16	6.34	6.72	4.85	4.99	7.04
Feb. 79	7.09	5.75	6.78	4.71	4.50	6.86
March 79	7.08	5.50	6.22	4.64	4.30	6.42
April 79	6.03	5.11	5.85	4.16	4.29	5.98
May 79	5.81	5.12	5.22	3.77	4.29	5.46
June 79	6.61	5.74	5.88	4.49	4.88	5.80
July 79	6.83	5.95	6.08	4.21	4.78	5.89
Aug. 79	6.58	5.39	6.13	4.03	4.64	5.85
Sept. 79	6.62	5.39	6.01	4.08	4.59	5.79

TABLE 4: Other Demographics for FY79

	Area 100	300	400	500	700	800
Propensity to Enlist	.224	.272	.2195	.1866	.2279	.2068
Labor Force Size October, 1978)	18,577,000	11,652,000	18,096,000	12,954,000	9,508,000	16,003,000
Ratio of Military pay to Civilian pay October, 1978)	.781	.930	.666	.687	.82	.724
Percent of male 17-21 year olds that are Black	11.14%	25.92%	13.84%	8.14%	15.4%	6.66%
Percent of male 17-21 year olds in SMSA	85.87%	58.63%	73.29%	61.46%	69.26%	81.81%

that actually ship a given number of months later. The matrix is included for completeness in Table 5. A final factor used is the attrition factor associated with the conversion of contracts to shipments, both from the initial DEP pool and from contracts signed during the year. This factor, initially set at 4.5% based upon estimates of the Recruiting Command, can be easily changed. Another factor is the overhead rates that are appropriate for the two types of advertising included in the analysis, namely LAMS advertising and all other advertising (except JADOR and RAD expenditures). The factors are presently set at 1 so that only the actual placement cost of the advertising is being calculated.

5.0 DETAILED EXAMPLE FOR BUDGET GENERATION MODE: (FOR SINGLE YEAR) Quota On High School Graduate Accessions

5.1 Inputs

Consider the single year case for FY79 where the national, yearly quota input to the Program is equal approximately to that actually achieved in FY79, the same being true for the terminal DEP position requirement.

Hence the key inputs become:

i) A total quota on male, non-prior service, active duty HSG shipments of 55,163; these are to come from the initial DEP pool at the beginning of FY79 plus those that sign a contract and ship sometime during the year.

ii) A terminal DEP requirement, at the end of the fiscal year, of 10,041.

iii) The economic and demographic scenarios are those shown in the Tables 3 and 4, which were applicable for FY79.

iv) The initial size of the Delayed Entry Program for HSG recruits was 10,833.

v) The yearly cost of a recruiter, including a prorated amount of RAD cost at $1,104 per recruiter, is assumed to be $26,009 in FY79 dollars.

vi) The inflation factor, to convert FY79 dollars to 1967 dollars, is 2.039.

vii) The attrition factor (in converting contracts from the DEP pool and from contracts signed during the year into shipments) is 4.5%.

TABLE 5 : DELAY FACTORS FOR SHIPMENTS OF HSG CONTRACTS

Delay in Months	0	1	2	3	4	5	6	7	8	9	10	11	12
JAN.	.3508	.1535	.0608	.0244	.0297	.0715	.0801	.0529	.0535	.1087	.0056	.0025	.0056
FEB.	.3167	.1667	.0671	.0408	.0787	.0782	.0754	.0667	.0352	.0543	.0047	.0023	.0130
MARCH	.2901	.1424	.0844	.0964	.0903	.0872	.0858	.0525	.0259	.0373	.0048	.0014	.0014
APRIL	.2919	.1617	.1285	.1007	.1019	.0701	.0575	.0330	.0220	.0264	.0018	.0016	.0005
MAY	.3980	.2019	.1156	.0721	.0598	.0507	.0317	.0141	.0240	.0265	.0016	.0014	.0025
JUNE	.4777	.1461	.0928	.0670	.0244	.0149	.0132	.0177	.0089	.0593	.0093	.0082	.0602
JULY	.4990	.1374	.1090	.0341	.0320	.0185	.0257	.0093	.0010	.0399	.0049	.0702	.0188
AUG.	.5088	.1063	.0968	.0439	.0326	.0270	.0122	.0580	0	.0363	.0773	.0232	.0295
SEPT.	.5320	.1530	.0531	.0336	.0372	.0206	.0136	.0068	.0016	.1129	.0114	.0052	.0042
OCT.	.4952	.1158	.0535	.0526	.0182	.0133	.0069	.0105	.0499	.1555	.0206	.0105	.0058
NOV.	.4517	.0966	.0909	.0281	.0186	.0114	.0215	.0704	.0490	.1456	.0155	.0066	.0019
DEC.	.3925	.1656	.0499	.0264	.0148	.0275	.0950	.0516	.0815	.0756	.0115	.0041	.0039

*EXAMPLE 35.08 percent of contracts signed in January will ship in January and 6.08 percent of the January contracts will ship 2 months later in March.

No attrition is applied to the terminal DEP requirement.

viii) The initial levels of Recruiters, LAMS advertising and all other Advertising (except JADOR expenditures) are those given earlier in Table 2, by Area, for August and September of 1978. The elasticities, lag patterns for advertising, LAMS and recruiters, are those generated from years 1976-1978 and validated for FY79.

5.2 Outputs of Computer Analysis for the Stated Set of Parameters: Examples of Actual Reports

There are a series of reports, made up of 2 National Summary Reports , one concentrating mainly on dollar flows, and the other on the optimal flows of HSG contracts and HSG accessions over time.

Consider the first Report, labled Report 1. We see that for the 12 months of FY79, the Program states that the total minimum costs needed would be $89.7452 M (in FY79 dollars) and that this is divided between $6.4303 M in Advertising and $83.3149 M in recruiter (or 3,203.3 man-years of recruiters). This is to be compared with 3,405 man-years actually consumed. Note that the level of recruiting effort is constant for each month at $6.9429 M since we forced the model to choose one optimal level of recruiters that it could not vary for the entire year. This is to reflect the reality that recruiters cannot be moved around, added or deleted over the short term except in small quantities. A control parameter in the problem control file enables the user to relax this restriction somewhat and allows recruiter variation to have more flexibility over time. Note also that the mix of advertising placement cost versus expenditures associated with recruiters was such that 7.4% of the total was for advertising. This agreed well with the 7.2% for the actual FY79.

Now consider the second part of Report 1. It shows first, for the country as a whole, the numberof HSG contracts (enlistments) being signed by month. (This was 56,972 on the Report). The flow of contracts over the 12 months may be useful for setting targets on contracts (as well as for accessions). The next number is the number of shipments coming from the initial delayed entry pool (less attrition). This is labeled Shipments from Initial Delayed Entry Pool and is the size of the initial DEP pool of 10,833 x .955 = 10,346.

Report 1: SUMMARY REPORT FOR 'LL AREAS (dollars)

	Total for Horizon	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Period 11	Period 12
Advertising Total	$6.4303M	.0188	.0864	.1215	.4289	.4005	.4169	.4162	.4410	.7707	.8952	1.2211	1.2132
Recruiting Total	$83.3149M	6.9429	6.9429	6.9429	6.9429	6.9429	6.9429	6.9429	6.9429	6.9429	6.9429	6.9429	6.9429
Total	$89.7452M	6.9617	7.0293	7.0644	7.3718	7.3434	7.3598	7.3591	7.3839	7.7136	7.8381	8.1640	8.1561

Report 1B

	Total for 12 months	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
HSG Contracts	56,972	3,545	4,037	4,060	5,632	5,922	5,593	4,110	3,837	4,914	4,840	5,526	4,955
Total Shipments from Initial DEP pool	10,346	3,119	1,344	1.033	838	446	745	299	310	1,694	289	207	21
Total Accessions	55,166	4,782	3,475	3,108	3,895	3,407	3,784	2,842	3,471	7,334	6,337	6,751	5,960
Quota	55,163	-	-	-	-	-	-	-	-	-	-	-	-
Terminal DEP pool (without attrition)	10,042												

The row labeled accessions is the number of shipments for the year in question both from the initial DEP pool and from contracts signed during the year; it has had the attrition taken out. These quantities by month are the theoretically optimal national goals for male, non-prior service HSG shipments (active duty plus reservists). This should be at least equal to the total quota on shipments. The number in our case is 55,166 where the quota was 55,163. Finally the total size of the terminal DEP pool, without attrition applied, is 10,042 (the same as the terminal DEP requirement). If one looks at months 13-24 for the row labeled terminal DEP, we have the anticipated flow of shipments from the terminal DEP pool for the next year (less attrition). This information is used if a budget generation run is also desired for the succeeding year since one of the key inputs to next year is the flow of shipments from the DEP pool at the beginning of the year. In our case, this anticipated flow of shipments from the DEP pool as of September 30, 1979 would be as follows:

Oct. 79	Nov. 79	Dec. 79	Jan. 80	Feb. 80	March 80
3,083	1,457	873	783	433	398
April 80	May 80	June 80	July 80	Aug. 80	Sept. 80
270	270	1,557	265	181	20

This is a total of 9,590 and results from the terminal DEP requirement of 10,041 multiplied by the non-attrition factor of .955. Finally at the bottom of Report 1 are any shortfalls from the quotas. Note that there will only be shortfalls in a budget execution run and not in a budget building run. Hence to summarize, the above information would enable the Recruiting Command to do goaling by month for the entire country, not just on accessions but on contracts as well. These results, together with the initial distribution of the DEP pool, could also be used for setting DEP targets by month by area.

Consider next Report 2 which summarizes down the accessions and contracts by Area, by month. The second half of the report breaks down optimally the

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR HORIZON	PERIOD 1	PERIOD 2	PERIOD 3	PERIOD 4	PERIOD 5	PERIOD 6	PERIOD 7	PERIOD 8	PERIOD 9	PERIOD 10	PERIOD 11	PERIOD 12
ENLISTMENTS FOR REGION 1	14.5887	0.9167	1.0410	1.0435	1.4346	1.5210	1.4466	1.0492	0.9809	1.2587	1.2423	1.3804	1.2737
ENLISTMENTS FOR REGION 2	14.6676	0.9015	1.0258	1.0407	1.4750	1.5250	1.4392	1.0598	0.9977	1.2771	1.2618	1.3866	1.2775
ENLISTMENTS FOR REGION 3	10.4256	0.6338	0.7267	0.7303	1.0351	1.1023	1.0330	0.7623	0.7029	0.9003	0.8890	0.9959	0.9141
ENLISTMENTS FOR REGION 4	3.2476	0.2172	0.2381	0.2391	0.3168	0.3367	0.3195	0.2338	0.2162	0.2797	0.2712	0.3011	0.2781
ENLISTMENTS FOR REGION 5	8.0880	0.4797	0.5623	0.5622	0.7838	0.8182	0.7726	0.5761	0.5425	0.6960	0.6811	0.9097	0.7038
ENLISTMENTS FOR REGION 6	5.9540	0.3962	0.4427	0.4439	0.5869	0.6188	0.5817	0.4286	0.3968	0.5025	0.4949	0.5527	0.5081
TOTAL (1000'S)	56.9716	3.5450	4.0368	4.0598	5.6322	5.9220	5.5926	4.1099	3.8369	4.9144	4.8403	5.5264	4.9552
ACCESSIONS FOR REGION 1	13.341	0.9896	0.7905	0.7190	0.9319	0.8443	0.9166	0.7060	0.8650	1.7498	1.6038	1.6986	1.5252
ACCESSIONS FOR REGION 2	13.634	1.0540	0.8129	0.7397	0.9630	0.8602	0.9341	0.7165	0.8808	1.8023	1.6250	1.7118	1.5338
ACCESSIONS FOR REGION 3	10.546	1.0049	0.6888	0.6079	0.7472	0.6518	0.7303	0.5382	0.6507	1.4178	1.1745	1.2377	1.0959
ACCESSIONS FOR REGION 4	3.769	0.4648	0.2832	0.2430	0.2729	0.2214	0.2605	0.1794	0.2158	0.5201	0.3781	0.3910	0.3377
ACCESSIONS FOR REGION 5	7.403	0.5497	0.4357	0.3949	0.5113	0.4595	0.4575	0.3843	0.4752	0.9674	0.8757	1.0027	0.8512
ACCESSIONS FOR REGION 6	6.470	0.7187	0.4637	0.4031	0.4684	0.3896	0.4449	0.3173	0.3829	0.8769	0.6795	0.7090	0.6165
TOTAL (1000'S)	55.163	4.7816	3.4748	3.1077	3.8946	3.4268	3.7840	2.8418	3.4705	7.3343	6.3368	6.7508	5.9603

national accession quota by Area, i.e. 13,341 shipments from Area 1 (100), 13,634 from Area 2 (300), 10,546 from Area 3 (400), 3,769 from Area 4 (500), 8,802 from Area 5 (700), and 6,470 from Area 6 (800). In addition this report breaks down the terminal DEP by Area. The 10,041 is made up as:

	Total	Area 100	300	400	500	700	800
Ideal Terminal DEP as of September 30, 1979	10,041	2,560	2,583	1,841	562	1,465	1,030

The other Reports 3 - 8 are all area specific and depict the same types of information by area. A representative report for Area 100 is included (Report 3).

5.3 Comparison of Actual Levels of Theoretically Ideal Levels of FY79

The following Tables are included which compare to actual levels attained in FY 79 to the theoretical levels with perfect foresight.

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 1 (Area 100)

	TOTAL FOR HORIZON	PERIOD 1	PERIOD 2	PERIOD 3	PERIOD 4	PERIOD 5	PERIOD 6	PERIOD 7	PERIOD 8	PERIOD 9	PERIOD 10	PERIOD 11	PERIOD 12
ADVERTISING TOTAL	1.6405	0.0049	0.0221	0.0312	0.1095	0.1028	0.1076	0.1063	0.1129	0.1561	0.2294	0.3060	0.3117
RECRUITING	21.2553	1.7713	1.7713	1.7713	1.7713	1.7713	1.7713	1.7713	1.7713	1.7713	1.7713	1.7713	1.7713
TOTAL COST (MILLION $)	22.8958	1.7761	1.7933	1.8026	1.8808	1.8741	1.8789	1.8776	1.8841	1.9674	2.0007	2.0773	2.0830
ENLISTMENTS (contracts)	14.5887	0.9167	1.0410	1.0435	1.4346	1.5210	1.4466	1.0492	0.9809	1.2587	1.2423	1.3804	1.2737
DELAYED ENTRY (Shipments from Initial DEP)	1.8546	0.5596	0.2407	0.1853	0.1499	0.0802	0.1337	0.0535	0.0559	0.3037	0.0516	0.0372	0.0038
ACCESSIONS	13.341	0.9896	0.7905	0.7190	0.9319	0.8443	0.9166	0.7060	0.8650	1.7498	1.6038	1.6986	1.5252
TERMINAL DEP	2.560												

Comparisons, by Area for FY79, of Resources and HSG Contracts Between Actuals and Theoretically Optimal Levels

	Actual # of HSG Contracts	Optimal # of HSG Contracts	Actual # of Recruiter Man-Years	Optimal # of Recruiter Man-Years	Actual Level of Dollar Advertising	Optimal Level of Advertisin
Area 100	12,127	14,589 (20.3% more)	659	817.2 (24% more)	$1,456K	$1,870 K (28.4% more
Area 300	10,869	14,668 (34.9% more)	586.8	824 (40.4% more)	$1,060K	$1,860K (75.5% more
Area 400	10,836	10,426 (3.9% less)	645.8	587.3 (9.1% less)	$1,484K	$1,310K (11.7% less
Area 500	6,363	3,248 (48 9% less)	487	179.6 (63.1% less)	$1,125K	$ 436K (61.2% less
Area 700	6,995	8,088 (15.6% more)	426.3	466.7 (9.5% more)	$ 860K	$ 934K (8.6% mo)
Area 800	9,844	5,954 (39.5% less)	600.2	328.4 (45.3% less)	$1,129	$ 806K (28.6% less
Country as Whole	57,034	56,973	3,405	3,203 (5.9% less)	$7,114K	$6,430K (9.6% less)

Hence we notice that the major differences are:

i) Area 100 and Area 300 appear to warrant substantially more resources and would then produce substantial increases in quality enlistments.

ii) Area 400 is about on target as is Area 700.

iii) Areas 500 (Chicago) and 800 (Far West) both appear to be substantially overstaffed and, while it is true that the reduction of resources in those Areas will lower production in those Areas, the gains from putting those resources in other Areas more than offsets the losses.

COMPARISONS BY MONTH FOR ENTIRE COUNTRY OF DISTRIBUTION OF ADVERTISING AND HSG CONTRACTS BETWEEN ACTUALS AND THEORETICALLY OPRIMAL LEVELS

	Actual HSG Contracts	Optimal Flow of HSG Contracts	Actual Percent of Advertising Expenditures	Optimal Percen of Advertising Expenditures
October 1978	3,880	3,545 (8.6% less)	16.5%	7.2%
November 1978	3,735	4,037 (8.1% more)	12.4%	8.3%
December 1978	4,342	4,060 (6.5% less)	1.5%	8.3%
January 1979	5,294	5,632 (6.4% more)	11.2%	9.9%
February 1979	4,617	5,922 (28.3% more)	13.8%	9.9%
March 1979	4,891	5,593 (14.4% more)	16.4%	9.2%
April 1979	4,008	4,109 (2.5% more)	7.0%	7.3%
May 1979	3,985	3,837 (3.7% less)	7.9%	6.9%
June 1979	5,339	4,914 (8.0% less)	2.7%	8.4%
July 1979	5,394	4,840 (10.3% less)	7.9%	8.1%
August 1979	6,291	5,526 (12.2% less)	8.3%	8.9%
September 1979	5,102	4,955 (12.9% less)	8.1%	7.5%
TOTAL	56,897	56,973	100 %	100 %

The difference in allocations are due in part to the size of the DEP pool at the beginning of the year, but more to economic efficiencies where resources are allocated to those Areas with the highest yield per dollar spent. Because of unfavorable demographics* associated with "propensity to enlist" (Areas 500 and 800 have the lowest of the 6 Areas), ratio of military pay to civilian pay (Areas 500 and 800 are among the lowest for this measure, i.e., .687 and .724 compared to .93 for Area 300, for example), and percent of 17-21 year old males who live in an urban area (i.e., Area 500 is only 61.5% compared to 85.9% for Area 100), Areas 500 and 800 have intrinsically a lower yield, in terms of HSG contracts per dollar expended than some of the other areas and appear not to merit the magnitude of resources that has been typically allocated to them in the past.

* See Table 4

6.0 DETAILED INPUT FORMATS AND USE IN MULTI-YEAR PLANNING

6.1 General Considerations

As mentioned earlier, there are three input files for executing the Program. The first is the Base File and will not normally require any changes or additions by the user. There are two versions of the base files, one for focusing on HSG recruits, and one for focusing on Upper-Mental HSG recruits. The base files sent to the Naval Recruiting Command in October, 1981 enabled the Recruiting Command to easily make runs for outyears, while inputting only a few key demographics related to size of eligibile population and unemployment rates. The base file will automatically compute the modified production function coefficients, given changes in demographics from the base year of FY79. The Program will not run without this base file; hence one of two decks of cards, one representing the FY79 base file to be used for HSG recruits and the other, the FY79 base file to be used for Upper Mental HSG recruits, will need to be loaded prior to running the Program.

The detailed formats for the base file follow with some comments. The order of the cards is not important but if the labels are missing, the Program will abort.

The second is what we shall term the Scenario File. It contains label cards containing the various demographic inputs, by Area by month, for the Fiscal Year of interest. The items dealt with include the male High School senior population, unemployment rate, and others. If the user chooses to enter nothing on a given label card, the Program will default to the levels existing in FY79; these have been earlier presented , (see Table 3 and 4).

This scenario file is used to construct the 72 non-linear enlistment contract production functions, for each of the fiscal years, to be manipulated in the optimization. These 72 non-linear production functions capture differences in the number of quality contracts that would be obtained, across different areas and different months, if the same stream of recruiter resources and advertising resources were expended. This file is described subsequently in detail.

The third file is the so-called Control File with only three cards. It controls the mode of the Program, e.g., fiscal year under analysis, budget generation versus budget execution, constraints on recruiter allocations, the types of quotas to be concentrated on, etc.

The fourth and last file is known as the Results File, has four cards, and plays an important role in the multi-year planning mode. This file initializes the problem (in terms of the assumed or actual number of recruiters and advertising levels in the field prior to the fiscal year of interest) as well as the size of the initial DEP pool by Area. The detailed formats will follow subsequently.

6.2 Use in Multi-Year Planning: An Illustration

The user of this package can perform, for either HSG or Upper Mental HSG accession quotas, budget generation runs for a period of up to five years. The code automatically taking into account the coupling or interactions between the years in question. This interaction arises because of the lagged effects of recruiters' efforts and advertising (where advertising expenditures incurred several months ago may affect the number of

enlistment contracts attained this month); the other interaction is the size of the Delayed Entry Pool.

This interaction is best understood by appreciating that a set of low quotas for one year has its impacts on the enlistments signed early in the next year since the low quotas influence the numbers of recruiters in the field, the dollars of advertising and the numbers in the DEP pipeline. The procedure for a multi-year budget generation is as follows:

1) The user inputs the demographic scenario for the first year of interest, e.g., FY 83. If he inputs only the size of the male High School senior population and the assumed unemployment rate (the key two demographics), the Program will automatically utilize the FY 79 levels for the minor demographics related to "propensity to enlist," "percent black," and "percent urban." Note that based upon his interest in HSG accessions or Upper Mental HSG accessions, the user selects one of two basic files to be used. He also inputs initial conditions as to the size of the DEP pool at the beginning of the FY and the initial levels of recruiters and advertising. See the format of the "Results File" for details.

2) The user then inputs the quotas, the size of the ending DEP pool, cost of a recruiter man-year, etc. for a one year run.

3) The program is run for the first year with detailed outputs related to the budgets required, optimal flow of enlistments, split of budget, etc., for the first year. Also a temporary file and a batch of cards is automatically produced to replace the old "Results File", i.e., to produce initial

conditions for the second fiscal year.

4) If the user is interested in the budget generation run for the second year, together with the impacts of the first year's decisions on the second year's production, he can initiate a second year's run. To do this he enters the demographics for the second year (as before) and the quotas and the terminal DEP position desired at the end of the second year. The user does not have to enter the initial conditions for the second year on the "Results File" as before as these are created automatically by the Program and entered in the appropriate place. If it is desired to say make a five year run and if only 1 year of scenario data is included, the Program automatically utilizes the first year's scenario for the second, third, fourth and fifth years. The advantage of this scheme is that the user can inspect the results of the first year before continuing into the second year. If the budget results for the first year are not feasible or palatable, the run of the subsequent year's results, which are dependent on the terminal conditions of the first year's run, can be terminated. Hence, in summary, if the user wishes to run several years in sequence to obtain insights as to the interactions of results over several years, the hard part of the effort, (namely the transfer of last year's terminal conditions to the next year's initial conditions) is accomplsihed by the computer.

An example covering two years will be shown in Section 6.7.

6.3 THE BASE FILE LAYOUT

Columns 1-6 (label)	7-8 (fiscal year information)	9-10	11-12	13-72 Description	Notes
SIZE				*IMAX JMAX VMAX TMAX LMAX NMAX (6I4)	(This is card 1 in Base File and sets the maximum size problem that can be addressed in terms of areas, number of months, etc.)
A	0	0	J (1-2)	Sum of Delay Fractions for each month (7F8.3)	(There are two cards with 12 pieces of information (one for each month) dealing with the attrition from contract signing to shipment. These are currently at .955 for all 12 months, representing 4.5% attrition rate.)
ALPHA	0	0	J (1-3)	Elasticity for Recruiters, and each adv. type for given lag (3F8.3)	(This contains the elasticities being used for recruiters and the 2 types of Advertising respectively for present month on card numbered 1, 1 month lagged on card numbered 2, and 2 months lagged on card numbered 3.
ANAME	0	0	name of Adv.	Name of Advertising Type (2A8)	(These are names of any breakouts of Advertising used).
B	0	0	J (1-2)	Elasticity related to Prod. Fun. Values (7F8.3)	(These are the elasticities for the 8 demographic variables utilized.)
BBLK	0	0	J (1-14)	Proportion of Blacks for base year for month J for each of the six areas (6F8.3)	(This is a sequence of 14 cards, 1 for each month of base year (FY79) including 2 months lags; each card has 6 entries, one for each Area.)
BENL	0	0	J (1-14)	Propensity (6F8.3)	" " "

		DESCRIPTION	Values for this problem
*	IMAX	Number of Regions	6
	JMAX	Number of Time Periods	12
	VMAX	Number of Periods Entry May be Delayed After Enlistment	13
	TMAX	Number of Time Periods (including post-horizon)	24
	LMAX	Number of Lagged Periods for Production Functions	3
	NMAX	Types of Advertising	2

continued

BETA	0	0	J (1-2)	Delay Fractions (7F8.3)	(There are 2 cards for each month, depicting the 13 delay factors corresponding to the percent of contracts signed in a given month that ship x months late (x=0, 1...12)
BHSSR	0	0	J (1-14)	High School male senior population (6F8.3)	(This is a sequence of 14 cards, 1 for each month of base year (FY79) including 2 months lags; each card has 6 entries, one for each Area.)
BLAB	0	0	"	Labor Force in thousands (6F8.3)	" " "
BP	0	0	J (1-12)	Base year Pij (6F8.3)	(This is a sequence of 12 cards, 1 for each month of base year (FY79) including 2 months lags; each card has 6 entries, one for each Area.)
BPAY	0	0	J (1-14)	Pay Ratios (military pay to civilian pay)	(This is a sequence of 14 cards, 1 for each month of base year (FY79) including 2 months lags; each card has 6 entries, one for each Area.)
BUNE	0	0	"	Unemployment Rate (6F8.3)	" " "
BURB	0	0	"	Proportion Urban (6F8.3)	" " "
BUPMN*	0	0	"	Percent of High School Seniors rated Upper Mental (6F8.3)	" " "
DEPATT	0	0	0	Dep Attrition Factor (F8.3)	(single entry at .045 currently)
ENDPCT	0	0	J (11-12)	Min. % Total Advertising for Period J for each type of adv.	(These parameters enable us to add contraints for each of the types of advertising by month).

*These cards are included in the deck only when the upper mental category contracts are analyzed.

continued

GROW	0	0	0	Inflation Factor	(This is a parameter representing the value of dollars, relative to 1967, for the year dollars desired. If it is FY79 dollars, this parameter is 2.039).
LAMBDA	0	0	0	Koyck Term (F8.3)	(Single number representing Koyck value from regression used to produce new set of Pij).
RECAMT	0	0	0	Monthly Recruiter Cost (in 1967 dollars) (F8.3)	(Single number representing Recruiter cost per month in 1967 dollars.)
SCALE	0	0	0	Overhead Rates for each type of advertising	(There rates are currently at 1 and hence only placement cost being calculated) The first overhead rate is for LAMS and the second for all other advertising, for RAD, and JADOR.
DEPF	0	0	J (1-2)	Final DEP (7F8.3)	(There are twelve numbers for final DEP desired, and represent the number of shipments,(from contracts signed the year before) in thousands, desired for each month of the subsequent year for the type of recruit under analysis. If the only real requirement is for a given size DEP pool at the end of the year (and not when those shipments actually come in), then it does not matter what numbers are inputted here since they will not be used.

6.4 THE SCENARIO FILE LAYOUT

Columns 1-6 (label)	7-8 (fiscal year information)	9-10	11-12	13-72 Description	Notes
DEPQ	79	0	0	Dep Target (F10.6)	(A single number for the national terminal Dep desired.)
ENLST**	78 or 79	0	J (1-14)	Propensity (6F8.3)	There are 14 cards (one for each month, including lag periods) 6 entries on each card for each of the Areas.
HSSEN**	79	0	J (1-26)	High School seniors demographic (7F8.3)	There 14 cards (one for each month), each card has HS senior males by Area.
LABOR**	78 or 79	0	J (1-14)	Size of Labor Force (in thousands) (6F8.3)	" " "
PAYRAT**	"	0	"	Ratios of Military pay to civilian (6F8.3)	" " "
PBLACK**	79	0	"	Percent Black (6F8.3)	" " "
PURBAN**	79	0	"	Percent Urban (6F8.3)	" " "
UNEMP**	79	0	J (1-26)	Unemployment Scenario (7F8.3)	There are 26 cards, each card has general unemployment scenario by Area. (These rates are multiplied by 100).

** The number of cards for demographic variables depends on the number of years under consideration. There are 14 cards for 1 year, 26 cards for 2 years, 38 cards for 3 years, 50 cards for 4 years and 62 cards for 5 years. If the variable values are not entered, they default to FY79 levels.

continued

UPMEN**	79	0	J (1-14)	Percent of High School senior rated Upper Mental (6F8.3)	There are 14 cards (one for each month, including lag periods) 6 entries on each card for each of the Areas.
Q	79	0	J (1-4)	National Monthly Accession quotas (7F8.3)	These are the 24 monthly national quotas.
QR	78 or 79	0	J (1-12)	Area Accession quotas by month (6F8.3)	These are the 72 are-monthly quotas. Each card represents a a month with 6 entries on it (for each Area).
QUP	79	0	J (1-4)	Upper Limits on accessions by month (7F8.3)	Reflects any constraints on Recruit Training Centers
TOTALQ	79	0	1	Total Accession quota for year (F8.3)	Single Number

**The number of cards for demographic variables depends on the number of years under consideration. There are 14 cards for 1 year, 26 cards for 2 years, 38 cards for 3 years, 50 cards for 4 years and 62 cards for 5 years. If the variable vlaues are not entered, they default to FY79 levels.

6.5 THE CONTROL FILE LAYOUT

Columns	Description	Notes
The first card is:		
1-5	PARMS	
6-12		
13-15	Fiscal year under study (I3)	
16-18	1 or 2 (I3)	Always use a 1 where the delay factors are not considered as decision variables
19-26	Budget for recruiting in millions dollars (1967 dollars) (F8.1)	In a budget generation mode, put in upper bound of 76. In a budget execution mode, put available budget in 1967 dollars.
27-34	Budget available for all advertising (millions in 1967 dollars) (F8.1)	If using budget generation mode put in 5.5.
35-39	Percent decrease in recruiters per period allowed (F5.1)	This should be set at 0 and if varied, allows numbers of recruiters to vary over year.
40-44	Percent increase in recruiters per period (F5.1)	This should also be set at 0.
45-47	Budget types enter a 0 or a 1	0 if separate budgets are of interest, and 1 if combined budget is of interest. (I3)
The second card is:		
1	W	
7-8	79	
11	0	
12	0	
13	Objective function weight (7F8.3)	The first is weight on national, yearly quota; second on final DEP, third on national monthly quotas, fourth on dep-monthly quotas (i.e., how they come in over time), fifth on area-monthly quotas, the sixth on upper bound constraints and the seventh on excess budget. (In a budget generation mode put a 1 on national quota, 1 on terminal DEP request, and a .1 on excess budget).
The third and last card is:		
1-3	END	

6.6 THE RESULTS FILE LAYOUT

Columns 1-6	7-8	9-10	11-12	13-72 Description	Notes
XO	78	0	0	Initial level of recruiters in Sept. (in thousands)(6f8.3)	This card contains for each of the 6 areas the number of recruiters present in the September prior to the year of interest.
YO	78	L (1 or 2)	N (1 or 2)	Initial levels of advertising as of Aug. and Sept. of each type by area. (6F8.3)	This sequence contains 4 cards,one card for each lag and each type of advertising.(Each card has 6 entries,one for each area). If no information entered,program defaults to August and September of 1979.
DEPR	78	0	0	Initial DEP by area (6f8.3)	This contains the size of the unattrited DEP pool by area.

6.7 Illustration of a Two-Year Budget Generation Run for HSG Accessions

The following are the actual computer inputs and outputs for a Two-Year run (in a budget generation mode) for FY79 and FY80 for HSG accessions. The following are the actual files for the Control, Base, Scenario, and Results file. Consider the Control File, the first file shown. The first year in question is FY79, the first entry in the file. The second factor controls whether or not the delay factors (in the DEP Program) are to be decision variables or not. The Program is normally run with a "1" which means the delay factors are not controllable. The next two factors are used to facilitate the budget generation run. They are gross upper bounds of the recruiting costs ($79.5 million in 1967 dollars) and $6.0M for the advertising costs (in 1967 dollars). Note the recruiting costs include RAD costs and the advertising costs are only the advertising placement costs at the moment. When overhead factors become available for advertising, the Program has the capability of accepting it and hence outputting a more complete advertising costs. If the quotas of interest were much higher than those used in this run (i.e., 54,642 HSG accessions in FY79 and a terminal DEP for HSG recruits of 10,041) then these upper bounds should be increased. The next two entries are both 0 and are options afforded the user to allow the number of recruiters to vary over the year. Typically, we do not allow the flexibility so the factors are set to 0. The last 0 relates to a single budget or distinct budgets that cannot be comingled. The "0" signifies that distinct budgets, one for recruiting and one for all advertising, are of interest.

ACTUAL CONTROL FILE

```
                    NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
                    LISTING OF INPUT DATA
                    =====================

PROBLEM PARAMETERS:
        79 FY        FISCAL YEAR
         1 MODEB     TYPE OF DELAY FACTORS TO USE
     79.50 BUD1      TOTAL RECRUITING BUDGET
      6.00 BUD2      TOTAL ADVERTISING BUDGET
       0.0 PCTLO     LIMIT ON RECRUITER DECREASE PER PERIOD (%)
       0.0 PCTHI     LIMIT ON RECRUITER GROWTH PER PERIOD (%)
         0 IBTYPE    TYPE OF BUDGET CONSTRAINTS
==================================================================

PROBLEM SIZE VALUES:
         6 IMAX      NUMBER OF REGIONS
        12 JMAX      NUMBER OF TIME PERIODS
        13 VMAX      NUMBER OF PERIODS ENTRY MAY BE DELAYED AFTER ENLISTMENT
        24 TMAX      NUMBER OF TIME PERIODS (INCLUDING POST-HORIZON)
         3 LMAX      NUMBER OF LAGGED PERIODS FOR PRODUCTION FUNCTIONS
         2 NMAX      TYPES OF ADVERTISING
==================================================================
```

The next information shown on the printout is the Problem Size card. (Note the cards do not have to be in any given order as the "Label" in columns 1-6 tells the type of information being entered; hence if the input cards are dropped and reshuffled it does not affect the workings of the Program.) These parameters shown control the parameters for this run. In general the user will not change these. They are:

IMAX = 6(the number of recruiting Areas), JMAX = 12 (the number of time periods, i.e., months in a year), VMAX = 13 (the number of periods for the delayed entry program where month 0 represents the direct shipment mode), TMAX = 24 (the total number of months whose accessions are affected by contracts signed in FY79 due to the Delayed Entry Program, LMAX = 2 (relates to the lag pattern of advertising and recruiters where advertising expenditures two months earlier effect HSG Contracts attained in this month), NMAX = 2 (relates to the disaggregation of advertising types).

The econometric analysis for the calendar years 1976-1979 found a real distinction in the elasticity impacts of LAMS advertising and all other advertising so that it only disaggregrated these two. When more information as to the separate impacts of TV/radio, magazines, direct mail, Minority Advertising, JADOR, etc. are available, it can be easily accomodated in the Program.

Consider now the Base File, dealing with the core information as to the delayed entry delay factors, attrition, elasticities, and demographics for FY79. Recall there are two distinct base files, one

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE (HS62)

```
A      0000 1  .955   .955   .955   .955   .955   .955   .955   00000020
A      0000 2  .955   .955   .955   .955   .955                  00000030
ALPHA  0000 1  .6855  .0437  .0                                  00000040
ALPHA  0000 2  .0390  .0024  .0                                  00000050
ALPHA  0000 3  .0022  .0014  .0088                               00000060
ANAME  0000 1LAMS                                                00000070
ANAME  0000 2MEDI                                                00000080
B      0000 1  .181   .245   -.038  .674   .002   .168   .195   00000090
B      0000 2  .0                                                00000100
BBLK   0000 1 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419    00000110
BBLK   0000 2 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419    00000120
BBLK   0000 3 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419    00000130
BBLK   0000 4 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419    00000140
BBLK   0000 5 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419    00000150
BBLK   0000 6 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000160
BBLK   0000 7 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000170
BBLK   0000 8 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000180
BBLK   0000 9 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000190
BBLK   000010 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000200
BBLK   000011 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000210
BBLK   000012 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000220
BBLK   000013 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000230
BBLK   000014 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000240
BENL   0000 1 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944    00000250
BENL   0000 2 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944    00000260
BENL   0000 3 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944    00000270
BENL   0000 4 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944    00000280
BENL   0000 5 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944    00000290
BENL   0000 6 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000300
BENL   0000 7 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000310
BENL   0000 8 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000320
BENL   0000 9 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000330
BENL   000010 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000340
BENL   000011 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000350
BENL   000012 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000360
BENL   000013 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000370
BENL   000014 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000380
BETA   00 1 1  0.4690  0.1097  0.0507  0.0498  0.0173  0.0126  0.0065  00000390
BETA   00 1 2  0.0099  0.0473  0.1473  0.0195  0.0099  0.0055          00000400
BETA   00 2 1  0.4316  0.0923  0.0868  0.0268  0.0178  0.0109  0.0205  00000410
BETA   00 2 2  0.0672  0.0391  0.1391  0.0148  0.0063  0.0018          00000420
BETA   00 3 1  0.3749  0.1582  0.0477  0.0252  0.0141  0.0263  0.0907  00000430
BETA   00 3 2  0.0493  0.0778  0.0722  0.0110  0.0039  0.0037          00000440
BETA   00 4 1  0.3352  0.1467  0.0581  0.0233  0.0284  0.0683  0.0765  00000450
BETA   00 4 2  0.0505  0.0511  0.1039  0.0053  0.0024  0.0053          00000460
BETA   00 5 1  0.3025  0.1592  0.0641  0.0390  0.0752  0.0747  0.0720  00000470
BETA   00 5 2  0.0637  0.0336  0.0519  0.0045  0.0022  0.0124          00000480
BETA   00 6 1  0.2772  0.1361  0.0806  0.0921  0.0862  0.0833  0.0819  00000490
BETA   00 6 2  0.0501  0.0247  0.0356  0.0046  0.0013  0.0013          00000500
BETA   00 7 1  0.2790  0.1545  0.1228  0.0962  0.0974  0.0669  0.0549  00000510
BETA   00 7 2  0.0334  0.0210  0.0252  0.0017  0.0015  0.0005          00000520
```

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE (CONTINUED)

```
BETA   00 8 1  0.3802  0.1928  0.1105  0.0689  0.0571  0.0484  0.0303  00000530
BETA   00 8 2  0.0135  0.0229  0.0253  0.0015  0.0013  0.0024          00000540
BETA   00 9 1  0.4565  0.1396  0.0886  0.0640  0.0233  0.0142  0.0126  00000550
BETA   00 9 2  0.0169  0.0085  0.0566  0.0089  0.0078  0.0575          00000560
BETA   0010 1  0.4766  0.1312  0.1041  0.0326  0.0306  0.0177  0.0235  00000570
BETA   0010 2  0.0089  0.0010  0.0381  0.0047  0.0670  0.0180          00000580
BETA   0011 1  0.4859  0.1015  0.0924  0.0419  0.0311  0.0258  0.0117  00000590
BETA   0011 2  0.0055  0.0003  0.0347  0.0738  0.0222  0.0282          00000600
BETA   0012 1  0.5156  0.1483  0.0515  0.0326  0.0360  0.0200  0.0132  00000610
BETA   0012 2  0.0066  0.0015  0.1094  0.0111  0.0051  0.0041          00000620
BHSSR  0000 1 330363. 212292. 343660. 281977. 191668. 259900.          00000630
BHSSR  0000 2 330363. 212292. 343660. 281977. 191668. 259900.          00000640
BHSSR  0000 3 334331. 235877. 324847. 286987. 197695. 251348.          00000650
BHSSR  0000 4 334331. 235877. 324847. 286987. 197695. 251348.          00000660
BHSSR  0000 5 334331. 235877. 324847. 286987. 197695. 251348.          00000670
BHSSR  0000 6 334331. 235877. 324847. 286987. 197695. 251348.          00000680
BHSSR  0000 7 334331. 235877. 324847. 286987. 197695. 251348.          00000690
BHSSR  0000 8 334331. 235877. 324847. 286987. 197695. 251348.          00000700
BHSSR  0000 9 334331. 235877. 324847. 286987. 197695. 251348.          00000710
BHSSR  000010 334331. 235877. 324847. 286987. 197695. 251348.          00000720
BHSSR  000011 334331. 235877. 324847. 286987. 197695. 251348.          00000730
BHSSR  000012 334331. 235877. 324847. 286987. 197695. 251348.          00000740
BHSSR  000013 334331. 235877. 324847. 286987. 197695. 251348.          00000750
BHSSR  000014 334331. 235877. 324847. 286987. 197695. 251348.          00000760
BLAB   0000 1  18004.  11282.  17360.  12388.   8930.  15113.          00000770
BLAB   0000 2  17828.  11252.  17325.  12304.   8965.  15156.          00000780
BLAB   0000 3  17708.  11232.  17384.  12301.   8994.  14793.          00000790
BLAB   0000 4  17711.  11242.  17395.  12303.   8889.  14749.          00000800
BLAB   0000 5  18251.  11332.  17581.  12509.   9167.  15408.          00000810
BLAB   0000 6  18251.  11286.  17258.  20858.   9164.  14944.          00000820
BLAB   0000 7  18163.  11274.  17039.  20828.   9157.  15402.          00000830
BLAB   0000 8  18220.  11324.  17490.  12465.   9294.  15617.          00000840
BLAB   0000 9  18311.  12249.  17599.  12544.   9500.  15678.          00000850
BLAB   000010  18249.  12284.  17706.  12678.   9356.  15754.          00000860
BLAB   000011  17503.  12466.  18074.  12961.   9408.  15754.          00000870
BLAB   000012  18867.  11773.  18152.  12995.   9561.  16041.          00000880
BLAB   000013  18788.  11637.  18106.  12966.   9545.  16017.          00000890
BLAB   000014  18577.  11672.  17598.  12837.   9409.  16010.          00000900
BP     0000 11.4017651.3716691.2352070.9995691.1076881.173964          00000910
BP     0000 21.5884411.5567161.4323021.1656781.3246431.360285          00000920
BP     0000 31.6280461.6134781.4772941.2193661.3641951.410179          00000930
BP     0000 42.0155242.0608741.8868511.4596521.7149251.684749          00000940
BP     0000 52.1370122.1293112.0050091.5482611.7883801.773673          00000950
BP     0000 62.0259122.0038651.8743651.4647441.6837801.662812          00000960
BP     0000 71.4812111.4863821.3930981.0799961.2637781.234141          00000970
BP     0000 81.3837631.3976961.2844280.9983821.1886641.142356          00000980
BP     0000 91.7221371.7354141.5957371.2521361.4790671.404027          00000990
BP     000010 1.6817831.6964381.5591171.2026431.4317731.368188         00001000
BP     000011 1.8192781.8159641.6997141.2998461.8455871.487456         00001010
BP     000012 1.6722051.6667841.5544301.1958141.4346231.362279         00001020
```

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE (CONTINUED)

```
BPAY  0000 1 0.76047 0.91494 0.66946 0.68360 0.81551 0.70240                00001030
BPAY  0000 2 0.75472 0.90802 0.66440 0.67844 0.80934 0.69709                00001040
BPAY  0000 3 0.79593 0.95759 0.70067 0.71548 0.85353 0.73514                00001050
BPAY  0000 4 0.79371 0.95493 0.69872 0.71348 0.85115 0.73310                00001060
BPAY  0000 5 0.79297 0.95404 0.69807 0.71282 0.85036 0.73242                00001070
BPAY  0000 6 0.80194 0.95414 0.69669 0.70256 0.86212 0.74066                00001080
BPAY  0000 7 0.79310 0.94362 0.68901 0.69482 0.85262 0.73250                00001090
BPAY  0000 8 0.77938 0.92730 0.67709 0.68280 0.83787 0.71983                00001100
BPAY  0000 9 0.76753 0.91319 0.66679 0.67242 0.82513 0.70888                00001110
BPAY  000010 0.77042 0.91663 0.66931 0.67495 0.82824 0.71155                00001120
BPAY  000011 0.76500 0.91018 0.66460 0.67020 0.82241 0.70654                00001130
BPAY  000012 0.75828 0.90219 0.65876 0.66431 0.81519 0.70034                00001140
BPAY  000013 0.75776 0.90157 0.65831 0.66386 0.81463 0.69986                00001150
BPAY  000014 0.75248 0.89529 0.65372 0.65923 0.80895 0.69498                00001160
BUNE  0000 1 7.25950 5.59298 5.80069 4.31870 5.46473 6.86826                00001170
BUNE  0000 2 6.77025 5.37682 5.21789 4.06372 5.17568 6.40670                00001180
BUNE  0000 3 6.55071 5.32401 5.14266 3.91838 5.11452 6.41520                00001190
BUNE  0000 4 6.45362 5.39050 5.25438 4.03154 5.03994 6.48180                00001200
BUNE  0000 5 7.10098 6.06248 5.57989 4.87649 5.06163 6.68484                00001210
BUNE  0000 6 7.82971 7.02640 6.75629 6.55863 5.77259 7.31397                00001220
BUNE  0000 7 7.85113 6.03158 6.63184 6.27521 6.72240 7.34969                00001230
BUNE  0000 8 7.22832 5.85171 6.36364 5.13438 5.17538 7.07562                00001240
BUNE  0000 9 6.69543 5.25757 5.06279 4.32079 4.52632 6.44215                00001250
BUNE  000010 6.47159 5.21817 5.12821 4.37766 4.70286 6.22699                00001260
BUNE  000011 6.78741 5.69549 5.59367 4.69100 4.76190 6.22699                00001270
BUNE  000012 7.15005 6.09870 5.70736 4.80954 5.25050 7.05068                00001280
BUNE  000013 6.83947 5.68016 5.83232 4.56579 5.01853 6.23712                00001290
BUNE  000014 6.79873 5.62886 5.11168 4.01963 4.82517 5.82136                00001300
BURB  0000 1 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                00001310
BURB  0000 2 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                00001320
BURB  0000 3 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                00001330
BURB  0000 4 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                00001340
BURB  0000 5 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                00001350
BURB  0000 6 0.85873 0.58632 0.732   0.61457 0.69260 0.81813                00001360
BURB  0000 7 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                00001370
BURB  0000 8 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                00001380
BURB  0000 9 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                00001390
BURB  000010 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                00001400
BURB  000011 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                00001410
BURB  000012 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                00001420
BURB  000013 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                00001430
BURB  000014 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                00001440
DEPATT0000 1  0.955                                                         00001450
ENDPCT000011    .0     8.60                                                 00001460
ENDPCT000012    .0     6.60                                                 00001470
GROW  000000  2.039                                                         00001480
LAMBDA000000   .0569                                                        00001490
RECAMT000000  1.063                                                         00001500
SCALE 000000  1.0     1.0                                                   00001510
DEPF  0000 1   .302    .130    .100    .081    .043    .072    .029         00001520
DEPF  0000 2   .030    .163    .028    .020    .002                         00001530
```

to be used for HSG runs and a separate one for Upper Mental, HSG runs. The one being displayed is for a HSG run. The only numbers in this file that need to be changed* by the user are:

1) The factor labeled GROW shown at 2.039. It represents the cost of living index for the year of interest, relative to the year 1967. Since the run being shown is for FY79, the factor (obtained from the Department of Commerce publications) was 2.039. This is an important factor since the outputs are all calculated in the dollars of the year in question. Hence if a budget run for FY83 is desired, then an estimate of the cost of living index for FY83 is needed.

2) The factor labeled RECAMT, shown at 1.063. This represents the monthly recruiters costs (including RAD materials) in 1967 dollars in thousand of dollars. Hence the 1.063 represents $1,063 as the monthly recruiter costs in 1967 dollars or about $26,009 per year in FY79 dollars (i.e., $26,009 = $1,063 x 12 x 2.039). Hence for a run in FY83 it is necessary to estimate the monthly costs in FY83 dollars and then convert that to 1967 dollars. (Note: it is important that the Recruiting Command be clear on which types of costs to include in this figure, i.e., does one include retirement, benefits, etc. or simply salary. At present we have estimated salary (exclusive of benefits)plus support costs).

3) The two factors labeled SCALE shown at 1.0 and 1.0 are the overhead factors, when available, to be applied to the two types of advertising placement expenditures used, i.e., LAMS and all other advertising (exclusive of RAD and JADOR). Since a factor of 1.0 is being used, only the placement costs are being calculated and this underestimates

* The earlier factors shown are respectively:A (the monthly attrition factors), ALPHA (the elasticities for recruiters and the two types of advertising for 3 months), B (the elasticities for the 8 demographics included), BETA (the delay factors associated with the DEP Program), BHSSR (the number of High School seniors in FY79), BLAB (the size of the labor force in FY79), BP (the enlistment propensity in FY79), BPAY (the pay ratio in FY79), BUNE (the unemployment rates in FY79), and BURB (the urban-rural split in FY79).

NAVY RECRUITING COMMAND
RECRULTING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE (CASE EX79)

```
DEPG  7900 1 10.041                                                    00000010
ENLST 780011 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944           00000020
ENLST 780012 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944           00000030
ENLST 7900 1 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944           00000040
ENLST 7900 2 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944           00000050
ENLST 7900 3 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944           00000060
ENLST 7900 4 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000070
ENLST 7900 5 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000080
ENLST 7900 6 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000090
ENLST 7900 7 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000100
ENLST 7900 8 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000110
ENLST 7900 9 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000120
ENLST 790010 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000130
ENLST 790011 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000140
ENLST 790012 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000150
HSSEN 780011 330363. 212292. 343660. 281977. 191668. 259900.           00000160
HSSEN 780012 330363. 212292. 343660. 281977. 191668. 259900.           00000170
HSSEN 7900 1 334331. 235877. 324847. 286987. 197695. 251348.           00000180
HSSEN 7900 2 334331. 235877. 324847. 286987. 197695. 251348.           00000190
HSSEN 7900 3 334331. 235877. 324847. 286987. 197695. 251348.           00000200
HSSEN 7900 4 334331. 235877. 324847. 286987. 197695. 251348.           00000210
HSSEN 7900 5 334331. 235877. 324847. 286987. 197695. 251348.           00000220
HSSEN 7900 6 334331. 235877. 324847. 286987. 197695. 251348.           00000230
HSSEN 7900 7 334331. 235877. 324847. 286987. 197695. 251348.           00000240
HSSEN 7900 8 334331. 235877. 324847. 286987. 197695. 251348.           00000250
HSSEN 7900 9 334331. 235877. 324847. 286987. 197695. 251348.           00000260
HSSEN 790010 334331. 235877. 324847. 286987. 197695. 251348.           00000270
HSSEN 790011 334331. 235877. 324847. 286987. 197695. 251348.           00000280
HSSEN 790012 334331. 235877. 324847. 286987. 197695. 251348.           00000290
LABOR 780011 18004. 11282. 17360. 12388. 8930. 15113.                  00000420
LABOR 780012 17828. 11252. 17325. 12304. 8965. 15156.                  00000430
LABOR 7900 1 17708. 11232. 17384. 12301. 8994. 14793.                  00000440
LABOR 7900 2 17711. 11242. 17395. 12303. 8889. 14749.                  00000450
LABOR 7900 3 18251. 11332. 17581. 12509. 9167. 15408.                  00000460
LABOR 7900 4 18251. 11286. 17258. 20858. 9164. 14944.                  00000470
LABOR 7900 5 18163. 11274. 17039. 20828. 9157. 15402.                  00000480
LABOR 7900 6 18220. 11324. 17490. 12465. 9294. 15617.                  00000490
LABOR 7900 7 18311. 12249. 17599. 12544. 9500. 15678.                  00000500
LABOR 7900 8 18249. 12284. 17706. 12678. 93561 15754.                  00000510
LABOR 7900 9 17503. 12466. 18074. 12961. 9408. 15754.                  00000520
LABOR 790010 18867. 11773. 18152. 12995. 9561. 16041.                  00000530
LABOR 790011 18788. 11637. 18106. 12966. 9445. 16017.                  00000540
LABOR 790012 18577. 11672. 17998. 12837. 9409. 16010.                  00000550
PAYRAT780011 0.76047 0.91494 0.66546 0.68360 0.81551 0.70240           00000560
PAYRAT780012 0.75472 0.90802 0.66440 0.67844 0.80934 0.69709           00000570
PAYRAT7900 1 0.79592 0.95759 0.70067 0.71548 0.85353 0.73514           00000580
PAYRAT7900 2 0.79371 0.95493 0.69872 0.71348 0.85115 0.73310           00000590
PAYRAT7900 3 0.79297 0.95404 0.69807 0.71282 0.85036 0.73242           00000600
PAYRAT7900 4 0.80194 0.95414 0.69669 0.70256 0.86212 0.74066           00000610
PAYRAT7900 5 0.79310 0.94362 0.68901 0.69482 0.85262 0.73250           00000620
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NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE (CONTINUED)

```
PAYRAT7900 6 0.77938 0.82730 0.67709 0.68280 0.83787 0.71983          00000630
PAYRAT7900 7 0.76753 0.91319 0.66679 0.67242 0.82513 0.70888          00000640
PAYRAT7900 8 0.77042 0.91663 0.66931 0.67495 0.82824 0.71155          00000650
PAYRAT7900 9 0.76500 0.91018 0.66460 0.67020 0.82241 0.70654          00000660
PAYRAT790010 0.75828 0.90219 0.65876 0.66431 0.81519 0.70034          00000670
PAYRAT790011 0.75776 0.90157 0.65831 0.66386 0.81463 0.69986          00000680
PAYRAT790012 0.75248 0.89529 0.65372 0.65923 0.80895 0.69498          00000690
PBLACK780011 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419          00000700
PBLACK780012 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419          00000710
PBLACK7900 1 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419          00000720
PBLACK7900 2 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419          00000730
PBLACK7900 3 0.10895 0.25853 0.13586 0.08019 0.15055 0.06419          00000740
PBLACK7900 4 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657          00000750
PBLACK7900 5 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657          00000760
PBLACK7900 6 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657          00000770
PBLACK7900 7 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657          00000780
PBLACK7900 8 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657          00000790
PBLACK7900 9 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657          00000800
PBLACK790010 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657          00000810
PBLACK790011 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657          00000820
PBLACK790012 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657          00000830
PURBAN780011 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659          00000840
PURBAN780012 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659          00000850
PURBAN7900 1 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659          00000860
PURBAN7900 2 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659          00000870
PURBAN7900 3 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659          00000880
PURBAN7900 4 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813          00000890
PURBAN7900 5 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813          00000900
PURBAN7900 6 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813          00000910
PURBAN7900 7 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813          00000920
PURBAN7900 8 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813          00000930
PURBAN7900 9 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813          00000940
PURBAN790010 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813          00000950
PURBAN790011 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813          00000960
PURBAN790012 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813          00000970
Q      7900 1   5.771   4.875   3.543   4.939   4.133   3.949   3.817  00000980
Q      7900 2   4.199   7.030   7.023   6.935   6.849   3.029   1.304  00000990
Q      7900 3   1.003   0.812   0.432   0.722   0.291   0.301   1.645  00001000
Q      7900 4   0.281   0.201   0.020                                  00001010
QR     7900 1   1.194   0.928   1.147   0.830   0.691   0.981          00001020
QR     7900 2   1.010   0.785   0.972   0.700   0.582   0.826          00001030
QR     7900 3   0.741   0.569   0.703   0.506   0.417   0.607          00001040
QR     7900 4   1.022   0.796   0.985   0.709   0.589   0.838          00001050
QR     7900 5   0.859   0.666   0.825   0.594   0.491   0.698          00001060
QR     7900 6   0.822   0.636   0.781   0.572   0.466   0.672          00001070
QR     7900 7   0.795   0.615   0.763   0.548   0.452   0.644          00001080
QR     7900 8   0.873   0.664   0.839   0.620   0.499   0.704          00001090
QR     7900 9   1.446   1.053   1.396   1.126   0.846   1.163          00001100
QR     790010   1.446   1.057   1.394   1.118   0.844   1.164          00001110
QR     790011   1.439   1.055   1.380   1.090   0.831   1.140          00001120
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NAVY RECRUITING COMMAND
RECRUITING ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE (CONTINUED)

QR	790012	1.421	1.021	1.363	1.108	0.820	1.116		00001130
QR	790013	0.543	0.612	0.687	0.353	0.316	0.519		00001140
QR	790014	0.234	0.264	0.294	0.152	0.136	0.223		00001150
QR	790015	0.180	0.203	0.228	0.117	0.104	0.171		00001160
QR	790016	0.145	0.164	0.184	0.095	0.085	0.139		00001170
QR	790017	0.077	0.087	0.099	0.050	0.045	0.074		00001180
QR	790018	0.130	0.146	0.164	0.084	0.075	0.123		00001190
QR	790019	0.052	0.059	0.066	0.034	0.030	0.050		00001200
QR	790020	0.053	0.061	0.068	0.035	0.031	0.051		00001210
QR	790021	0.295	0.333	0.373	0.191	0.172	0.281		00001220
QR	790022	0.050	0.057	0.064	0.033	0.029	0.048		00001230
QR	790023	0.036	0.041	0.046	0.023	0.021	0.034		00001240
QR	790024	0.004	0.004	0.005	0.002	0.002	0.003		00001250
QUP	7900 1	9.500	9.500	9.500	9.500	9.500	9.500	9.500	00001380
QUP	7900 2	9.500	9.500	9.500	9.500	9.500	9.500	9.500	00001390
QUP	7900 3	9.500	9.500	9.500	9.500	9.500	9.500	9.500	00001400
QUP	7900 4	9.500	9.500	9.500					00001410
TOTALQ	7900 1	54.642							00001420
UNEMP	780011	7.25950	5.59298	5.80069	4.31870	5.46473	6.86826		00001430
UNEMP	780012	6.77025	5.37682	5.21789	4.06372	5.17568	6.40670		00001440
UNEMP	7900 1	6.55071	5.32407	5.14266	3.91838	5.11452	6.41520		00001450
UNEMP	7900 2	6.45362	5.39050	5.25438	4.03154	5.03994	6.48180		00001460
UNEMP	7900 3	7.10098	6.06248	5.57989	4.87649	5.06163	6.68484		00001470
UNEMP	7900 4	7.82971	7.02640	6.75629	6.55863	5.77259	7.31397		00001480
UNEMP	7900 5	7.85113	6.03158	6.63184	6.27521	5.72240	7.34969		00001490
UNEMP	7900 6	7.22832	5.65171	6.36364	5.13438	5.17538	7.07562		00001500
UNEMP	7900 7	6.69543	5.25757	5.06279	4.32079	4.52632	6.44215		00001510
UNEMP	7900 8	6.47159	5.21817	5.12821	4.37766	4.70288	6.22699		00001520
UNEMP	7900 9	6.78741	5.69549	5.59367	4.69100	4.76190	6.22699		00001530
UNEMP	790010	7.15005	6.09870	5.70736	4.80954	5.25050	7.05068		00001540
UNEMP	790011	6.83947	5.68016	5.83232	4.56579	5.01853	6.23712		00001550
UNEMP	790012	6.79873	5.62888	5.11168	4.01963	4.82517	5.82136		00001560
W	79 1	1.000	1.000	0.000	0.00	0.00	0.000	0.100	00000020

the true costs of advertising. Hence in the tradeoffs between recruiter expenditures and advertising, the advertising is being given an unrealistic advantage. On the other hand, the recruiter costs at $26,009 per year in FY79 dollars is most likely an underestimate also, so they may tend to balance out. The last factors shown are the DEPF and are included as an option if it is desired to control the flow of shipments, coming out of contracts signed the year before. In most cases a requirement on the final DEP pool at the end of the year will suffice and so these 12 numbers are not needed, i.e., any numbers can be inputted as they will not be used.

Next consider the Scenario File. The key factors that need to be addressed by the user for this file are:

1) The factor labeled DEPQ, shown at 10,041. This is a key number and relates to the required size of the DEP pool (for the category of recruits being considered) wanted at the end of the year. For the run in question, this was set at 10,041 HSG recruits, which was about the number that actually did result.

2) The factor labeled HSSEN related to the number of male High School seniors for the year in question. These were needed by Area for each of the 14 months, i.e., the 12 months of the horizon plus the 2 months prior to the year of interest. These numbers are in actuals. Hence to illustrate, the number of male High School seniors for Area 100(i.e., Area 1) for August, 1978 (2 months prior to the beginning of FY79) was 330,363. If these factors are not put in,the Program will use the FY79 demographics. (Note: For the base file used for Upper Mental, HSG accession runs, there is an entry called UPMEN which is the percent of male High School seniors (i.e., fraction of HSSEN which are bright , i.e., Upper Mental, or in categories I-III Upper Mental on the AFEES exam).

3) The size of the Labor Force(labeled LABOR), in the same form as male High School seniors, for the 4 months by Area. This is entered in thousands. Hence to illustrate, the size of the labor force in Area 1, August 78 was 18,004,000. Once again, if these values are not entered, the Program will default to FY79 levels.

4) The factors labeled PAYRAT, or the ratios of first year military pay to civilian parties by Area by month. Again, if these values are not entered, the Program automatically defaults to the FY79 levels.

5) The factors labeled UNEMP refers to the general unemployment rates (multiplied by 100) for each Area for each month. Hence for Area 1, August 78,the general unemployment rate (obtained from Department of Commerce statistics) was 7.2595%. (Note: Those factors which have the biggest impact on the contract production functions are: High School seniors and unemployment rates. Hence it is suggested that most of the other values can be omitted (i.e., default to the FY79 levels) and the new scenarios concern themselves only with these two demographics.)

6) Consider the problem of quotas: the Program can accept monthly, national quotas on accessions (i.e.,Q's for 24 months), area-monthly quotas (i.e.,QR's for 24 months by Area) or a single quota of the entire year over the nation (i.e., TOTALQ). Which of these quotas is to be the driving factor in the run is controlled by a card in the Control File to be discussed subsequently. If the single national, yearly quota is the one of interest, it does not matter what numbers are entered in Q and QR, except for the fact that the monthly shortfalls* are computed on the basis of the monthly Area quotas or monthly-national quotas.

* These are shown at the bottom of the computerized reports as will be seen.

For the run in question, the run was driven by the single quota for FY79 of 54,642 HSG accession (from the initial DEP plus from new shipments).

Consider next the key control card (in the Control File) labeled W. This card has seven key entries and essentially determines the quotas and terminal DEP positions required. A "one" in the first and second columns puts the entire emphasis on meeting the single national, yearly quota on HSG accessions and on the meeting the required DEP position at the end of the year for HSG recruits. The .1 in the last column assures that this will be accomplished at least total cost.

Finally consider the so-called Results File. This initializes the problem for the first year and is also the place where the Program, in a multi-year mode, reports the terminal conditions for the first year (which becomes the initial conditions for the second year). The first card deals with the assumed initial recruiters in the field by Area prior to the beginning of the FY of interact, the dollars of advertising of the two types in August and September and initial DEP positions by Area at the beginning of the Fiscal Year. Note this total is the 10,833 HSG recruites in the DEP pool at the beginning of FY79.

This completes the listing of the inputs for the first year. The Program then produces the following reports: Note that the total cost is $89.7746 Million with $6.4327 Million for all advertising and $ 83.3419 Million for recruiters (this is 3,204 recruiters). Also note the level of accessions is 54,798 (compared to the 54,642 required), and that 10,345 of these came from the initial DEP of 10,833, less the attrition of 4.5%. Also note that 56,589 new HSG contracts were obtained, leaving a

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
RESULTS FILE FOR BEGINNING OF FY79, HS6')

```
XO     780000   .650    .574    .636    .490    .411    .631          00000010
YO     78 1 1   .0225   .0196   .0301   .0196   .0163   .0249         00000020
YO     78 1 2   .0225   .0196   .0301   .0196   .0163   .0249         00000030
YO     78 2 1   .0780   .0270   .0630   .0420   .0320   .0400         00000040
YO     78 2 2   .0880   .0700   .0920   .0740   .0610   .0710         00000050
DEPR   780000  1.942   2.192   2.458   1.261   1.129   1.851         00000060
END    78                                                             00000070
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READING OF INPUT DATA COMPLETE.

MATRIX GENERATION COMPLETE
1006 CARDS WRITTEN TO SCRATCH FILE NUMBER 12

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION (HS6's, FY79)
SUMMARY REPORT FOR ALL AREAS

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	6.4327	0.0181	0.0858	0.1216	0.6291	0.4007	0.6172	0.6166	0.6413	0.7711
RECRUITING	83.3419	6.9452	6.9452	6.9452	6.9452	6.9452	6.9452	6.9452	6.9452	6.9452
TOTAL COST (MILLION $)	89.7746	6.9632	7.0310	7.0667	7.5743	7.3459	7.3623	7.3616	7.3864	7.7163
CONTRACTS	56.5889	3.2903	3.8959	4.0606	5.6337	5.9236	5.5962	4.1110	3.8380	4.9157
INITIAL DELAY ENTRY POOL	10.3455	3.1263	1.3669	1.0346	0.8380	0.4669	0.7669	0.3000	0.3104	1.6863
ACCESSIONS	44.4531	1.5431	2.0424	2.0487	3.0328	2.9734	3.0342	2.5404	3.1555	5.6200
TOTAL ACCESSIONS	54.7986	4.6675	3.3873	3.0833	3.8708	3.6182	3.7791	2.8404	3.4658	7.3063
QUOTAS	63.0630	5.7710	4.8750	3.5430	4.9390	4.1330	3.9490	3.8170	4.1990	7.0300
SHORTFALLS	8.5407	1.1035	1.4877	0.4597	1.0682	0.7148	0.1699	0.9766	0.7332	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
SUMMARY REPORT FOR ALL AREAS

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	6.4327	0.8957	1.2218	1.2139						
RECRUITING	83.3419	6.9452	6.9452	6.9452						
TOTAL COST (MILLION $)	89.7746	7.8408	8.1670	8.1590						
CONTRACTS	56.5889	4.8416	5.5279	4.9565						
INITIAL DELAY ENTRY POOL	10.3455	0.2897	0.2069	0.0207	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	44.4531	6.0058	6.5206	5.9362	3.2268	1.5254	0.9148	0.8197	0.4539	0.4169
TOTAL ACCESSIONS	54.7986	6.2955	6.7275	5.9569	3.2268	1.5254	0.9148	0.8197	0.4539	0.4169
QUOTAS	63.0630	7.0230	6.9350	6.8490	3.0290	1.3040	1.0030	0.8120	0.4320	0.7220
SHORTFALLS	8.5407	0.7275	0.2075	0.8921	0.0	0.0	0.0882	0.0	0.0	0.3051

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
SUMMARY REPORT FOR ALL AREAS

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	6.6327						
RECRUITING	83.3419						
TOTAL COST (MILLION $)	89.7746						
CONTRACTS	56.5889						
INITIAL DELAY	10.3455	0.0	0.0	0.0	0.0	0.0	0.0
ENTRY POOL ACCESSIONS	44.4531	0.2823	0.2823	1.6306	0.2776	0.1897	0.0213
TOTAL ACCESSIONS	54.7986	0.2823	0.2823	1.6306	0.2776	0.1897	0.0213
QUOTAS	63.0630	0.2910	0.3010	1.6450	0.2810	0.2010	0.0200
SHORTFALLS	8.5407	0.0087	0.0187	0.0144	0.0036	0.0113	0.0

NAVY RECRUITING COMMAND
RECRUITING ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
CONTRACTS FOR REGION 1	14.5017	0.8600	1.0065	1.0438	1.4351	1.5215	1.4471	1.0496	0.9812	1.2592
CONTRACTS FOR REGION 2	14.2639	0.8317	0.9890	1.0408	1.4723	1.5253	1.4395	1.0601	0.9979	1.2774
CONTRACTS FOR REGION 3	10.3643	0.5932	0.7029	0.7305	1.0354	1.1027	1.0334	0.7626	0.7031	0.9006
CONTRACTS FOR REGION 4	3.2222	0.1999	0.2296	0.2392	0.3168	0.3367	0.3196	0.2339	0.2162	0.2797
CONTRACTS FOR REGION 5	8.0249	0.4368	0.5409	0.5623	0.7839	0.8184	0.7727	0.5762	0.5426	0.6961
CONTRACTS FOR REGION 6	5.9118	0.3687	0.4270	0.4440	0.5870	0.6190	0.5818	0.4287	0.3969	0.5027
TOTAL (1000'S)	56.5889	3.2903	3.8959	4.0606	5.6337	5.9236	5.5942	4.1110	3.8380	4.9157
ACCESSIONS FOR REGION 1	13.2571	0.9634	0.7698	0.7133	0.9266	0.8422	0.9153	0.7058	0.8642	1.7439
ACCESSIONS FOR REGION 2	13.5352	1.0223	0.7902	0.7330	0.9560	0.8584	0.9326	0.7154	0.8793	1.7952
ACCESSIONS FOR REGION 3	10.4871	0.9871	0.6736	0.6036	0.7433	0.6503	0.7296	0.5381	0.6508	1.4133
ACCESSIONS FOR REGION 4	3.7439	0.4575	0.2776	0.2414	0.2715	0.2211	0.2599	0.1798	0.2153	0.5174
ACCESSIONS FOR REGION 5	7.3450	0.5305	0.4215	0.3907	0.5077	0.4578	0.4970	0.3846	0.4743	0.9632
ACCESSIONS FOR REGION 6	6.4304	0.7068	0.4545	0.4013	0.4656	0.3884	0.4446	0.3167	0.3820	0.8734
TOTAL (1000'S)	54.7986	4.6675	3.3873	3.0833	3.8708	3.4182	3.7791	2.8404	3.4658	7.3063
QUOTAS	54.6420	5.7710	4.8750	3.5430	4.9390	4.1330	3.9490	3.8170	4.1990	7.0300
SHORTFALLS	0.0	1.1035	1.4877	0.4597	1.0682	0.7148	0.1699	0.9766	0.7332	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79
CONTRACTS FOR REGION 1	14.5017	1.2427	1.3808	1.2741
CONTRACTS FOR REGION 2	14.5639	1.2621	1.3869	1.2778
CONTRACTS FOR REGION 3	10.3643	0.8893	0.9962	0.9144
CONTRACTS FOR REGION 4	3.2222	0.2713	0.3011	0.2781
CONTRACTS FOR REGION 5	8.0249	0.6812	0.9099	0.7039
CONTRACTS FOR REGION 6	5.9118	0.5950	0.5529	0.5082
TOTAL (1000'S)	56.5889	4.8416	5.5279	4.9565
ACCESSIONS FOR REGION 1	13.2971	1.5950	1.6930	1.5246
ACCESSIONS FOR REGION 2	13.5352	1.6140	1.7055	1.5333
ACCESSIONS FOR REGION 3	10.4871	1.1678	1.2342	1.0955
ACCESSIONS FOR REGION 4	3.7439	0.3756	0.3898	0.3370
ACCESSIONS FOR REGION 5	7.3450	0.8683	0.9986	0.8508
ACCESSIONS FOR REGION 6	6.4304	0.6748	0.7064	0.6158
TOTAL (1000'S)	54.7986	6.2955	6.7275	5.9569
QUOTAS	54.6420	7.0230	6.9350	6.8490
SHORTFALLS	0.0	0.7275	0.2075	0.8921

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR POST-HORIZON	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
ACCESSIONS FOR REGION 1	2.5619	0.8239	0.3899	0.2338	0.2092	0.1160	0.1067	0.0724	0.0710	0.4157
ACCESSIONS FOR REGION 2	2.5829	0.8314	0.3924	0.2350	0.2112	0.1170	0.1079	0.0734	0.0716	0.4190
ACCESSIONS FOR REGION 3	1.8410	0.5923	0.2806	0.1679	0.1504	0.0834	0.0764	0.0519	0.0511	0.2984
ACCESSIONS FOR REGION 4	0.5629	0.1813	0.0858	0.0514	0.0460	0.0255	0.0236	0.0159	0.0155	0.0910
ACCESSIONS FOR REGION 5	1.4628	0.4654	0.2196	0.1326	0.1191	0.0655	0.0598	0.0399	0.0446	0.2407
ACCESSIONS FOR REGION 6	1.0255	0.3326	0.1571	0.0940	0.0840	0.0466	0.0426	0.0289	0.0286	0.1659
TOTAL (1000'S)	10.0411	3.2268	1.5254	0.9148	0.8197	0.4539	0.4169	0.2823	0.2823	1.6306
QUOTAS	10.0410	3.0290	1.3040	1.0030	0.8120	0.4320	0.7220	0.2910	0.3010	1.6450
SHORTFALLS	0.0	0.0	0.0	0.0882	0.0	0.0	0.3051	0.0087	0.0187	0.0144

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR POST-HORIZON	JUL 80	AUG 80	SEP 80
ACCESSIONS FOR REGION 1	2.5619	0.0703	0.0476	0.0055
ACCESSIONS FOR REGION 2	2.5829	0.0709	0.0478	0.0055
ACCESSIONS FOR REGION 3	1.8410	0.0505	0.0343	0.0039
ACCESSIONS FOR REGION 4	0.5629	0.0153	0.0104	0.0012
ACCESSIONS FOR REGION 5	1.5628	0.0422	0.0306	0.0030
ACCESSIONS FOR REGION 6	1.0299	0.0281	0.0190	0.0022
TOTAL (1000'S)	10.0411	0.2775	0.1897	0.0213
QUOTAS	10.0410	0.2810	0.2010	0.0200
SHORTFALLS	0.0	0.0036	0.0113	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION (HS61, FY79)
DETAILED REPORT FOR AREA 1

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	1.6412	0.0047	0.0219	0.0312	0.1096	0.1029	0.1077	0.1064	0.1129	0.1962
RECRUITING	21.2642	1.7720	1.7720	1.7720	1.7720	1.7720	1.7720	1.7720	1.7720	1.7120
TOTAL COST (MILLION $)	22.9054	1.7767	1.7939	1.8032	1.8816	1.8749	1.8797	1.8784	1.8850	1.9682
CONTRACTS	16.5017	0.8600	1.0065	1.0438	1.4351	1.5215	1.4671	1.0496	0.9812	1.2592
INITIAL DELAY ENTRY POOL	1.8546	0.5601	0.2611	0.1855	0.1502	0.0797	0.1335	0.0538	0.0556	0.3023
ACCESSIONS	11.4025	0.4033	0.5287	0.5278	0.7764	0.7624	0.7818	0.6520	0.8086	1.4416
TOTAL ACCESSIONS	13.2571	0.9634	0.7698	0.7133	0.9266	0.8422	0.9153	0.7058	0.8642	1.7439
QUOTAS	13.0680	1.1940	1.0100	0.7410	1.0220	0.8590	0.8220	0.7950	0.8730	1.4460
SHORTFALLS	0.7087	0.2306	0.2402	0.0277	0.0954	0.0168	0.0	0.0892	0.0088	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 1

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	1.6412	0.2256	0.3062	0.3119						
RECRUITING	21.2642	1.7720	1.7720	1.7720						
TOTAL COST (MILLION $)	22.9054	2.0016	2.0782	2.0839						
CONTRACTS	14.5017	1.2427	1.3808	1.2761						
INITIAL DELAY ENTRY POOL	1.8546	0.0519	0.0371	0.0037	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	11.4025	1.5430	1.6559	1.5208	0.8239	0.3899	0.2338	0.2092	0.1160	0.1067
TOTAL ACCESSIONS	13.2571	1.5950	1.6930	1.5246	0.8239	0.3899	0.2338	0.2092	0.1160	0.1067
QUOTAS	13.0680	1.4460	1.4390	1.4210	0.5430	0.2340	0.1800	0.1150	0.0770	0.1300
SHORTFALLS	0.7087	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0233

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 1

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	1.6412						
RECRUITING	21.2642						
TOTAL COST (MILLION $)	22.9054						
CONTRACTS	14.5017						
INITIAL DELAY ENTRY POOL	1.8546	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	11.4025	0.0724	0.0710	0.4157	0.0703	0.0476	0.0055
TOTAL ACCESSIONS	13.2571	0.0724	0.0710	0.4157	0.0703	0.0476	0.0055
QUOTAS	13.0680	0.0520	0.0530	0.2950	0.0500	0.0360	0.0040
SHORTFALLS	0.7087	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 2

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	1.6547	0.0046	0.0223	0.0313	0.1120	0.1032	0.1075	0.1076	0.1148	0.1986
RECRUITING	21.4383	1.7865	1.7865	1.7865	1.7865	1.7865	1.7865	1.7865	1.7865	1.7865
TOTAL COST (MILLION $)	23.0930	1.7911	1.8089	1.8179	1.8985	1.8897	1.8940	1.8941	1.9013	1.9851
CONTRACTS	14.5639	0.8317	0.9890	1.0408	1.4753	1.5253	1.4395	1.0601	0.9979	1.2774
INITIAL DELAY ENTRY POOL	2.0934	0.6322	0.2721	0.2093	0.1696	0.0900	0.1507	0.0607	0.0628	0.3412
ACCESSIONS	11.4418	0.3901	0.5181	0.5237	0.7865	0.7684	0.7819	0.6547	0.8165	1.4540
TOTAL ACCESSIONS	13.5352	1.0223	0.7902	0.7330	0.9560	0.8584	0.9326	0.7154	0.8793	1.7952
QUOTAS	9.8450	0.9280	0.7850	0.5690	0.7960	0.6660	0.6360	0.6150	0.6640	1.0530
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 2

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	1.6547	0.2323	0.3076	0.3129						
RECRUITING	21.4383	1.7865	1.7865	1.7865						
TOTAL COST (MILLION $)	23.0930	2.0188	2.0941	2.0994						
CONTRACTS	14.5639	1.2621	1.3869	1.2778						
INITIAL DELAY ENTRY POOL	2.0934	0.0586	0.0419	0.0042	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	11.4418	1.5554	1.6637	1.5291	0.8314	0.3924	0.2350	0.2112	0.1170	0.1079
TOTAL ACCESSIONS	13.5352	1.6140	1.7056	1.5333	0.8314	0.3924	0.2350	0.2112	0.1170	0.1079
QUOTAS	9.8450	1.0570	1.0550	1.0210	0.6120	0.2640	0.2030	0.1640	0.0870	0.1460
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0381

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 2

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	1.6547						
RECRUITING	21.4383						
TOTAL COST (MILLION $)	23.0930						
CONTRACTS	14.5639						
INITIAL DELAY ENTRY POOL	2.0934	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	11.4418	0.0734	0.0716	0.4190	0.0709	0.0478	0.0055
TOTAL ACCESSIONS	13.5352	0.0734	0.0716	0.4190	0.0709	0.0478	0.0055
QUOTAS	9.8450	0.0590	0.0610	0.3330	0.0570	0.0410	0.0040
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND

RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	1.1795	0.0033	0.0157	0.0223	0.0790	0.0745	0.0770	0.0770	0.0809	0.1407
RECRUITING	15.2809	1.2734	1.2734	1.2734	1.2734	1.2734	1.2734	1.2734	1.2734	1.2734
TOTAL COST (MILLION $)	16.4604	1.2767	1.2891	1.2958	1.3524	1.3479	1.3504	1.3504	1.3543	1.4141
CONTRACTS	10.3653	0.5932	0.7029	0.7305	1.0354	1.1027	1.0334	0.7626	0.7031	0.9006
INITIAL DELAY ENTRY POOL	2.3476	0.3089	0.3052	0.2347	0.1901	0.1009	0.1690	0.0681	0.0706	0.3826
ACCESSIONS	8.1397	0.2782	0.3685	0.3688	0.5532	0.5494	0.5606	0.4700	0.5803	1.0307
TOTAL ACCESSIONS	10.4871	0.9871	0.6736	0.6036	0.7433	0.6503	0.7296	0.5381	0.6508	1.4133
QUOTAS	12.5480	1.1470	0.9720	0.7030	0.9850	0.8250	0.7810	0.7630	0.8390	1.3960
SHORTFALLS	2.0782	0.1599	0.2984	0.0994	0.2417	0.1747	0.0514	0.2249	0.1882	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 3

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	1.1795	0.1645	0.2208	0.2239						
RECRUITING	15.2809	1.2734	1.2734	1.2734						
TOTAL COST (MILLION $)	16.4604	1.4379	1.4942	1.4973						
CONTRACTS	10.3443	0.8893	0.9962	0.9164						
INITIAL DELAY ENTRY POOL	2.3474	0.0657	0.0469	0.0047	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	8.1397	1.1021	1.1872	1.0908	0.5923	0.2806	0.1679	0.1504	0.0836	0.0764
TOTAL ACCESSIONS	10.4871	1.1678	1.2342	1.0955	0.5923	0.2806	0.1679	0.1504	0.0836	0.0764
QUOTAS	12.5480	1.3940	1.3800	1.3630	0.6870	0.2940	0.2280	0.1840	0.0990	0.1640
SHORTFALLS	2.0782	0.2262	0.1458	0.2675	0.0947	0.0134	0.0601	0.0336	0.0156	0.0876

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 3

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	1.1795						
RECRUITING	15.2809						
TOTAL COST (MILLION $)	16.4604						
CONTRACTS	10.3663						
INITIAL DELAY ENTRY POOL	2.3474	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	8.1357	0.0519	0.0511	0.2984	0.0505	0.0343	0.0039
TOTAL ACCESSIONS	10.4871	0.0519	0.0511	0.2984	0.0505	0.0343	0.0039
QUOTAS	12.5480	0.0660	0.0680	0.3730	0.0640	0.0460	0.0050
SHORTFALLS	2.0782	0.0141	0.0169	0.0746	0.0135	0.0117	0.0011

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 4

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 78
ADVERTISING	0.3606	0.0011	0.0049	0.0070	0.0242	0.0228	0.0238	0.0237	0.0248	0.0433
RECRUITING	4.6725	0.3894	0.3894	0.3894	0.3894	0.3894	0.3894	0.3894	0.3894	0.3894
TOTAL COST (MILLION $)	5.0331	0.3905	0.3942	0.3964	0.4136	0.4122	0.4132	0.4131	0.4142	0.4327
CONTRACTS	3.2222	0.1999	0.2296	0.2392	0.3168	0.3367	0.3196	0.2339	0.2162	0.2797
INITIAL DELAY ENTRY POOL	1.2043	0.3637	0.1566	0.1204	0.0975	0.0518	0.0867	0.0349	0.0361	0.1963
ACCESSIONS	2.5396	0.0938	0.1210	0.1210	0.1739	0.1694	0.1732	0.1449	0.1792	0.3211
TOTAL ACCESSIONS	3.7439	0.4575	0.2776	0.2414	0.2714	0.2211	0.2599	0.1798	0.2153	0.5174
QUOTAS	9.5210	0.8300	0.7000	0.5060	0.7090	0.5940	0.5720	0.5480	0.6200	1.1260
SHORTFALLS	5.7771	0.3725	0.4224	0.2646	0.4375	0.3729	0.3121	0.3682	0.4047	0.6086

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 15

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	0.3096	0.0201	0.0669	0.0681						
RECRUITING	4.6725	0.3896	0.3896	0.3896						
TOTAL COST (MILLION $)	5.0331	0.4395	0.4562	0.4575						
CONTRACTS	3.2222	0.2713	0.3011	0.2781						
INITIAL DELAY ENTRY POOL	1.2043	0.0337	0.0241	0.0024	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	2.5396	0.3419	0.3657	0.3346	0.1813	0.0858	0.0914	0.0460	0.0255	0.0236
TOTAL ACCESSIONS	3.7439	0.3756	0.3898	0.3370	0.1813	0.0858	0.0914	0.0460	0.0255	0.0236
QUOTAS	9.5210	1.1180	1.0900	1.1080	0.3530	0.1520	0.1170	0.0950	0.0500	0.0840
SHORTFALLS	5.7771	0.7424	0.7002	0.7710	0.1717	0.0662	0.0256	0.0490	0.0245	0.0604

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REP. FOR AREA 4

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	0.3606						
RECRUITING	4.6725						
TOTAL COST (MILLION $)	5.0331						
CONTRACTS	3.2222						
INITIAL DELAY ENTRY POOL	1.2043	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	2.5396	0.0159	0.0155	0.0910	0.0153	0.0104	0.0012
TOTAL ACCESSIONS	3.7439	0.0159	0.0155	0.0910	0.0153	0.0104	0.0012
QUOTAS	9.5210	0.0340	0.0350	0.1910	0.0330	0.0230	0.0020
SHORTFALLS	5.7771	0.0181	0.0195	0.1000	0.0177	0.0126	0.0008

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	0.9372	0.0024	0.0119	0.0168	0.0596	0.0555	0.0578	0.0585	0.0623	0.1139
RECRUITING	12.1415	1.0118	1.0118	1.0118	1.0118	1.0118	1.0118	1.0118	1.0118	1.0118
TOTAL COST (MILLION $)	13.0787	1.0142	1.0237	1.0286	1.0715	1.0673	1.0696	1.0703	1.0741	1.1257
CONTRACTS	8.0269	0.4368	0.5609	0.5623	0.7839	0.8186	0.7727	0.5762	0.5426	0.6961
INITIAL DELAY ENTRY POOL	1.0782	0.3256	0.1602	.1078	0.0873	0.0466	0.0776	0.0313	0.0323	0.1757
ACCESSIONS	6.2688	0.2049	0.2814	0.2829	0.6205	0.4114	0.4193	0.3533	0.4420	0.7874
TOTAL ACCESSIONS	7.3470	0.5305	0.4215	0.3901	0.5017	0.4578	0.4970	0.3846	0.4743	0.9632
QUOTAS	7.5280	0.6910	0.5820	0.4170	0.5890	0.4910	0.4660	0.4520	0.4990	0.8460
SHORTFALLS	0.5539	0.1605	0.1605	0.0263	0.0873	0.0332	0.0	0.0674	0.0247	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	0.9372	0.1277	0.1979	0.1727						
RECRUITING	12.1415	1.0118	1.0118	1.0118						
TOTAL COST (MILLION $)	13.0787	1.1395	1.2097	1.1845						
CONTRACTS	8.0249	0.6812	0.9099	0.7039						
INITIAL DELAY ENTRY POOL	1.0782	0.0302	0.0216	0.0022	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	6.2668	0.8381	0.9771	0.8487	0.4654	0.2196	0.1326	0.1191	0.0655	0.0598
TOTAL ACCESSIONS	7.3450	0.8683	0.9986	0.8508	0.4654	0.2196	0.1326	0.1191	0.0655	0.0598
QUOTAS	7.5280	0.8440	0.8310	0.8200	0.3160	0.1360	0.1040	0.0850	0.0450	0.0750
SHORTFALLS	0.5539	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0152

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	0.9372						
RECRUITING	12.1415						
TOTAL COST (MILLION $)	13.0787						
CONTRACTS	8.0269						
INITIAL DELAY ENTRY POOL	1.0782	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	6.2668	0.0399	0.0446	0.2407	0.0422	0.0306	0.0030
TOTAL ACCESSIONS	7.3450	0.0399	0.0446	0.2407	0.0422	0.0306	0.0030
QUOTAS	7.5280	0.0300	0.0310	0.1720	0.0290	0.0210	0.0020
SHORTFALLS	0.5539	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 6

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	0.6595	0.0020	0.0090	0.0129	0.0447	0.0418	0.0434	0.0432	0.0455	0.0784
RECRUITING	8.5445	0.7120	0.7120	0.7120	0.7120	0.7120	0.7120	0.7120	0.7120	0.7120
TOTAL COST (MILLION $)	9.2040	0.7140	0.7211	0.7249	0.7568	0.7539	0.7554	0.7552	0.7575	0.7904
CONTRACTS	5.9118	0.3687	0.4270	0.4440	0.5870	0.6190	0.5818	0.4287	0.3969	0.5027
INITIAL DELAY ENTRY POOL	1.7677	0.5338	0.2298	0.1768	0.1432	0.0760	0.1273	0.0513	0.0530	0.2881
ACCESSIONS	4.6627	0.1729	0.2247	0.2246	0.3224	0.3124	0.3174	0.2655	0.3289	0.5853
TOTAL ACCESSIONS	6.4304	0.7068	0.4545	0.4013	0.4656	0.3884	0.4446	0.3167	0.3820	0.8734
QUOTAS	10.5530	0.9810	0.8260	0.6070	0.8380	0.6980	0.6720	0.6440	0.7040	1.1630
SHORTFALLS	4.1226	0.2742	0.3715	0.2057	0.3724	0.3096	0.2274	0.3273	0.3220	0.2896

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 6

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	0.6595	0.0915	0.1226	0.1245						
RECRUITING	8.5445	0.7120	0.7120	0.7120						
TOTAL COST (MILLION $)	9.2040	0.8036	0.8346	0.8365						
CONTRACTS	5.9118	0.4950	0.5529	0.5082						
INITIAL DELAY ENTRY POOL	1.7677	0.0495	0.0354	0.0035	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	4.6627	0.6253	0.6710	0.6123	0.3326	0.1571	0.0940	0.0840	0.0466	0.0426
TOTAL ACCESSIONS	6.4304	0.6748	0.7044	0.6158	0.3326	0.1571	0.0940	0.0840	0.0466	0.0426
QUOTAS	10.5530	1.1640	1.1400	1.1160	0.5190	0.2230	0.1710	0.1390	0.0740	0.1230
SHORTFALLS	4.1226	0.4892	0.4336	0.5002	0.1864	0.0659	0.0770	0.0550	0.0274	0.0804

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA A

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	0.6595						
RECRUITING	8.5445						
TOTAL COST (MILLION $)	9.2040						
CONTRACTS	5.9118						
INITIAL DELAY ENTRY POOL	1.7677	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	4.6627	0.0289	0.0284	0.1659	0.0281	0.0190	0.0022
TOTAL ACCESSIONS	6.4304	0.0289	0.0284	0.1659	0.0281	0.0190	0.0022
QUOTAS	10.5530	0.0500	0.0510	0.2810	0.0480	0.0340	0.0030
SHORTFALLS	4.1226	0.0211	0.0226	0.1151	0.0199	0.0150	0.0008

terminal unattrited delayed entry pool of 10,041 (the required amount). Note this terminal DEP is distributed as the following over the 6 Areas: 2,562 in Area 1; 2,583 in Area 2; 1,841 in Area 3; 563 in Area 4; 1,463 in Area 5; 1,029 in Area 6. Also one can see how the DEP position at the end of the year FY79 will convert to accessions over the next year, i.e., 3,029 in October 1979, 1,304 in November 1979, etc...., 21 in September 1980. Consider the inputs for the next year, i.e., for FY80. Note the problem parameters and problem size are the same. The only changes for FY80 were as follows:

1) The total quota desired for FY80 was 55,500 (i.e., a slight increase over the 54,642 for the year before . Recall also that the initial DEP is lower now at 10,041 compared to 10,833 for the year before.)

2) The terminal DEP position is 10,850 (up from 10,041 the year before).

3) The size of the male High School senior population dropped slightly, e.g., for Area 1, January 1980, the number is 332,634 compared to 334,331 the year before.

4) The employment rate went down from say 6.55% for Area 1, January 1979 to 6.4766% for Area 1, January 1980.

5) The cost of living index was left at the same value as for FY79 so that the dollars reported are in FY79 dollars. Everything else was unchanged. Note that the user does not have to touch the new Results File as it is automatically created by the Program. It automatically inputs the recruiters in the field as of September, 1979 (i.e., the beginning of FY80) the levels of advertising, and the distribution of the DEP pool. Consider the outputs of FY80. The total cost is $100.1578 Million in FY79 dollars.

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION (HS6, FY80)
LISTING OF INPUT DATA

PROBLEM PARAMETERS:

80	FY	FISCAL YEAR
1	MODER	TYPE OF DELAY FACTORS TO USE
79.50	BUD1	TOTAL RECRUITING BUDGET
6.00	BUD2	TOTAL ADVERTISING BUDGET
0.0	PCTLO	LIMIT ON RECRUITER DECREASE PER PERIOD (%)
0.0	PCTHI	LIMIT ON RECRUITER GROWTH PER PERIOD (%)
0	IBTYPE	TYPE OF BUDGET CONSTRAINTS

PROBLEM SIZE VALUES:

6	IMAX	NUMBER OF REGIONS
12	JMAX	NUMBER OF TIME PERIODS
13	VMAX	NUMBER OF PERIODS ENTRY MAY BE DELAYED AFTER ENLISTMENT
24	TMAX	NUMBER OF TIME PERIODS (INCLUDING POST-HORIZON)
3	LMAX	NUMBER OF LAGGED PERIODS FOR PRODUCTION FUNCTIONS
2	NMAX	TYPES OF ADVERTISING

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE

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ALPHA  0000 2  .0580  .0037  .0                                  00000050
ALPHA  0000 3  .0022  .00014 .0099                               00000060
ANAME  0000 1LAMS                                                00000070
ANAME  0000 2MEDIA                                               00000080
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B      0000 2  .10                                               00000100
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BBLK   0000 2 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419    00000120
BBLK   0000 3 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419    00000130
BBLK   0000 4 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419    00000140
BBLK   0000 5 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419    00000150
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BBLK   0000 7 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000170
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BBLK   0000 9 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000190
BBLK   000010 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000200
BBLK   000011 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000210
BBLK   000012 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000220
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BBLK   000014 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657    00000240
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BENL   0000 2 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944    00000260
BENL   0000 3 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944    00000270
BENL   0000 4 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944    00000280
BENL   0000 5 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944    00000290
BENL   0000 6 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000300
BENL   0000 7 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000310
BENL   0000 8 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000320
BENL   0000 9 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000330
BENL   000010 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000340
BENL   000011 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000350
BENL   000012 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000360
BENL   000013 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000370
BENL   000014 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696    00000380
BETA   00 1 1 0.4690  0.1097  0.0507  0.0498  0.0173  0.0126  0.0065  00000390
BETA   00 1 2 0.0099  0.0473  0.1473  0.0195  0.0099  0.0055  00000400
BETA   00 2 1 0.4316  0.0923  0.0868  0.0268  0.0178  0.0109  0.0205  00000410
BETA   00 2 2 0.0472  0.0391  0.1391  0.0148  0.0063  0.0018  00000420
BETA   00 3 1 0.3749  0.1582  0.0477  0.0252  0.0141  0.0263  0.0907  00000430
BETA   00 3 2 0.0493  0.0778  0.0722  0.0110  0.0039  0.0037  00000440
BETA   00 4 1 0.3352  0.1467  0.0581  0.0233  0.0284  0.0683  0.0765  00000450
BETA   00 4 2 0.0505  0.0511  0.1039  0.0053  0.0024  0.0053  00000460
BETA   00 5 1 0.3025  0.1592  0.0641  0.0390  0.0752  0.0747  0.0720  00000470
BETA   00 5 2 0.0637  0.0336  0.0519  0.0045  0.0022  0.0124  00000480
BETA   00 6 1 0.2777  0.1361  0.0806  0.0921  0.0862  0.0853  0.0819  00000490
BETA   00 6 2 0.0501  0.0241  0.0356  0.0046  0.0013  0.0013  00000500
BETA   00 7 1 0.2790  0.1545  0.1228  0.0962  0.0974  0.0669  0.0549  00000510
BETA   00 7 2 0.0334  0.0210  0.0252  0.0017  0.0015  0.0005  00000520
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NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE

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BETA   00 8 1  0.3892  0.1928  0.1194  0.0682  0.0571  0.0484  0.0303   00000530
BETA   00 8 2  0.0135  0.0229  0.0253  0.0015  0.0013  0.0024           00000540
BETA   00 9 1  0.4565  0.1396  0.0886  0.0640  0.0233  0.0142  0.0126   00000550
BETA   00 9 2  0.0169  0.0085  0.0566  0.0089  0.0078  0.0575           00000560
BETA   0010 1  0.4766  0.1312  0.1041  0.0326  0.0306  0.0177  0.0245   00000570
BETA   0010 2  0.0089  0.0010  0.0381  0.0047  0.0670  0.0180           00000580
BETA   0011 1  0.4859  0.1015  0.0924  0.0419  0.0311  0.0258  0.0117   00000590
BETA   0011 2  0.0055  0.0003  0.0347  0.0738  0.0322  0.0282           00000600
BETA   0012 1  0.4756  0.1483  0.0945  0.0326  0.0320  0.0280  0.0132   00000610
BETA   0012 2  0.0068  0.0015  0.1094  0.0111  0.0051  0.0041           00000620
BHSSR  0000 1  330363. 212292. 343660. 281977. 191668. 259900.          00000630
BHSSR  0000 2  330363. 212292. 343660. 281977. 191668. 259900.          00000640
BHSSR  0000 3  334331. 235877. 324847. 286987. 197695. 251348.          00000650
BHSSR  0000 4  334331. 235877. 324847. 286987. 197695. 251348.          00000660
BHSSR  0000 5  334331. 235877. 324847. 286987. 197695. 251348.          00000670
BHSSR  0000 6  334331. 235877. 324847. 286987. 197695. 251348.          00000680
BHSSR  0000 7  334331. 235877. 324847. 286987. 197695. 251348.          00000690
BHSSR  0000 8  334331. 235877. 324847. 286987. 197695. 251348.          00000700
BHSSR  0000 9  334331. 235877. 324847. 286987. 197695. 251348.          00000710
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BHSSR  000012  334331. 235877. 324847. 286987. 197695. 251348.          00000740
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BHSSR  000014  334331. 235877. 324847. 286987. 197695. 251348.          00000760
BLAB   0000 1  18004.  11282.  17360.  12388.  8930.  15113.            00000770
BLAB   0000 2  17828.  11252.  17325.  12304.  8965.  15156.            00000780
BLAB   0000 3  17708.  11232.  17386.  12301.  8994.  14793.            00000790
BLAB   0000 4  17711.  11225.  17395.  12303.  8889.  14749.            00000800
BLAB   0000 5  18251.  11332.  17581.  12509.  9167.  15408.            00000810
BLAB   0000 6  18251.  11288.  17258.  20858.  9164.  14944.            00000820
BLAB   0000 7  18163.  11274.  17039.  20828.  9157.  15402.            00000830
BLAB   0000 8  18270.  11324.  17490.  12465.  9294.  15617.            00000840
BLAB   0000 9  18311.  12249.  17599.  12544.  9500.  15678.            00000850
BLAB   000010  18249.  12284.  17706.  12678.  9356.  15754.            00000860
BLAB   000011  17503.  12466.  18074.  12961.  9408.  15754.            00000870
BLAB   000012  18867.  11773.  18152.  12995.  9561.  16041.            00000880
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BLAB   000014  18577.  11672.  17958.  12837.  9403.  16010.            00000900
BP     0000 11.401765.371669.2352070.999540.1076881.173964.            00000910
BP     0000 21.588441.556971.4335021.1656781.3246431.360285            00000920
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BP     0000 42.019524.060874.8868511.4596521.7149251.684749            00000940
BP     0000 52.1370122.1293112.0050091.5482611.7883801.773673          00000950
BP     0000 62.0259122.0036651.8743651.4647441.6837801.662812          00000960
BP     0000 71.4812111.4063021.3930981.079996l.2637781.234141          00000970
BP     0000 81.3837631.3976961.2844280.9983821.1886641.142356          00000980
BP     0000 91.7221371.7354141.5907371.2521361.4790671.404027          00000990
BP     000010l.681783l.696438l.559117l.2026431.431773l.368188          00001000
BP     000011l.819278l.815964l.699714l.2998461.845387l.487456          00001010
BP     000012l.672205l.666784l.554430l.1958141.434623l.362279          00001020
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NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE

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BPAY   0000 1 0.76047 0.91484 0.66946 0.68369 0.81551 0.70240   00001030
BPAY   0000 2 0.75472 0.90802 0.66440 0.67844 0.80934 0.69709   00001040
BPAY   0000 3 0.79592 0.95759 0.70067 0.71548 0.85353 0.73514   00001050
BPAY   0000 4 0.79371 0.95493 0.69872 0.71348 0.85115 0.73310   00001060
BPAY   0000 5 0.79297 0.95404 0.69807 0.71282 0.85036 0.73242   00001070
BPAY   0000 6 0.80194 0.95414 0.69669 0.70256 0.86212 0.74066   00001080
BPAY   0000 7 0.79310 0.94362 0.68901 0.69482 0.85262 0.73250   00001090
BPAY   0000 8 0.77938 0.92730 0.67704 0.68260 0.83789 0.71983   00001100
BPAY   0000 9 0.76755 0.91319 0.66679 0.67242 0.82513 0.70888   00001110
BPAY   000010 0.77042 0.91663 0.66931 0.67495 0.82824 0.71155   00001120
BPAY   000011 0.76500 0.91018 0.66460 0.67020 0.82241 0.70654   00001130
BPAY   000012 0.75828 0.90219 0.65876 0.66431 0.81515 0.70034   00001140
BPAY   000013 0.7577[illegible] 0.90151 0.65831 0.66386 0.81463 0.69986   00001150
BPAY   000014 0.752[illegible]8 0.89529 0.65372 0.65923 0.80895 0.69498   00001160
BUNE   0000 1 7.25950 5.59298 5.80069 4.31870 4.[illegible]6473 6.86826   00001170
BUNE   0000 2 6.47025 5.[illegible]7685 4.21789 4.06372 4.[illegible]7568 6.40670   00001180
BUNE   0000 3 6.55071 5.32401 4.14266 3.91838 3.11452 6.41520   00001190
BUNE   0000 4 6.45362 5.39050 5.29438 4.03154 5.03994 6.48180   00001200
BUNE   0000 5 7.10098 6.06268 5.57989 4.87649 5.06163 6.68485   00001210
BUNE   0000 6 7.62971 6.02640 6.75623 6.55863 3.77259 7.31391   00001220
BUNE   0000 7 7.85113 6.03158 6.93184 6.27521 3.72240 7.34969   00001230
BUNE   0000 8 7.22832 5.65171 6.36364 5.13438 5.17538 7.07562   00001240
BUNE   0000 9 6.69563 5.25751 5.06279 4.32079 4.52632 6.44215   00001250
BUNE   000010 6.47159 5.21817 5.12821 4.37766 4.70286 6.22699   00001260
BUNE   000011 6.78741 5.69544 5.29367 4.69100 4.76190 6.22699   00001270
BUNE   000012 7.15005 6.09870 5.70736 4.80954 5.25050 7.05068   00001280
BUNE   000013 6.83947 5.68016 5.03232 4.56579 5.01853 6.23712   00001290
BUNE   000014 6.79873 5.62886 5.11168 4.01963 4.82517 5.82136   00001300
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BURB   0000 8 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00001380
BURB   0000 9 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00001390
BURB   000010 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00001400
BURB   000011 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00001410
BURB   000012 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00001420
BURB   000013 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00001430
BURB   000014 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00001440
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ENDPCT000012     .0     6.68                                    00001470
GROW   000000  2.039                                             00001480
LAMBDA000000   .0569                                             00001490
RECAMT000000  1.063                                              00001500
SCALE  000000   1.0     1.0                                      00001510
DEPF   0000 1   .302    .130    .100    .081    .043    .072    .029   00001520
DEPF   0000 2   .030    .163    .028    .020    .002                   00001530
```

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE (HS6, FY80)

```
DEPO  7900 1  10.041
ENLST 780011 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944                00000010
ENLST 780012 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944                00000020
ENLST 7900 1 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944                00000030
ENLST 7900 2 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944                00000040
ENLST 7900 3 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944                00000050
ENLST 7900 4 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000060
ENLST 7900 5 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000070
ENLST 7900 6 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000080
ENLST 7900 7 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000090
ENLST 7900 8 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000100
ENLST 7900 9 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000110
ENLST 790010 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000120
ENLST 790011 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000130
ENLST 790012 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000140
ENLST 790012 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                00000150
HSSEN 780011 330363. 212295. 343660. 281917. 191668. 259900.                00000160
HSSEN 780012 330363. 212295. 343660. 281917. 191668. 259900.                00000170
HSSEN 7900 1 334331. 235877. 324847. 286987. 197695. 251348.                00000180
HSSEN 7900 2 334331. 235877. 324847. 286987. 197695. 251348.                00000190
HSSEN 7900 3 334331. 235877. 324847. 286987. 197695. 251348.                00000200
HSSEN 7900 4 334331. 235877. 324847. 286987. 197695. 251348.                00000210
HSSEN 7900 5 334331. 235877. 324847. 286987. 197695. 251348.                00000220
HSSEN 7900 6 334331. 235877. 324847. 286987. 197695. 251348.                00000230
HSSEN 7900 7 334331. 235877. 324847. 286987. 197695. 251348.                00000240
HSSEN 7900 8 334331. 235877. 324847. 286987. 197695. 251348.                00000250
HSSEN 7900 9 334331. 235877. 324847. 286987. 197695. 251348.                00000260
HSSEN 790010 334331. 235877. 324847. 286987. 197695. 251348.                00000270
HSSEN 790011 334331. 235877. 324847. 286987. 197695. 251348.                00000280
HSSEN 790012 334331. 235877. 324847. 286987. 197695. 251348.                00000290
HSSEN 8000 1 332634. 235593. 323173. 284639. 190720. 251069.                00000300
HSSEN 8000 2 332634. 235593. 323173. 284639. 190720. 251069.                00000310
HSSEN 8000 3 332634. 235593. 323173. 284639. 190720. 251069.                00000320
HSSEN 8000 4 332635. 245696. 323173. 285531. 190720. 251069.                00000330
HSSEN 8000 5 332635. 235702. 323173. 285531. 190720. 251069.                00000340
HSSEN 8000 6 332635. 235696. 323173. 285531. 190720. 251069.                00000350
HSSEN 8000 7 332635. 235716. 323173. 285531. 190720. 251069.                00000360
HSSEN 8000 8 332635. 235716. 323173. 285531. 190720. 251069.                00000370
HSSEN 8000 9 332635. 235696. 323173. 285531. 190720. 251069.                00000380
HSSEN 800010 332635. 235696. 323173. 285441. 190720. 251069.                00000390
HSSEN 800011 332635. 235696. 323173. 285531. 190720. 251069.                00000400
HSSEN 800012 332635. 235696. 323173. 285441. 190720. 251069.                00000410
LABOR 780011  18004.  11282.  17360.  12388.   8930.  15113.                00000420
LABOR 780012  17828.  11252.  17325.  12304.   8965.  15156.                00000430
LABOR 7900 1  17708.  11232.  17384.  12301.   8994.  14793.                00000440
LABOR 7900 2  17711.  11242.  17395.  12303.   8889.  14769.                00000450
LABOR 7900 3  18251.  11315.  17541.  12509.   9167.  15408.                00000460
LABOR 7900 4  18251.  11286.  17258.  20858.   9164.  14944.                00000470
LABOR 7900 5  18163.  11292.  17638.  20828.   9187.  15402.                00000480
LABOR 7900 6  18220.  11324.  17490.  12465.   9294.  15617.                00000490
LABOR 7900 7  18311.  12249.  17569.  12544.   9500.  15678.                00000500
```

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE

```
LABOR 7900 8 -18269.  -12284.  -17796.  -12678.   -9356.  -13754.                00000510
LABOR 7900 9 -17503.  -12686.  -18074.  -12961.   -9408.  -15754.                00000520
LABOR 790010 -18867.  -11773.  -18152.  -12995.   -9561.  -16041.                00000530
LABOR 790011 -18788.  -11637.  -18106.  -12962.   -9245.  -16017.                00000540
LABOR 790012 -18577.  -11672.  -17998.  -12837.   -9409.  -16010.                00000550
PAYRAT780011 0.76047 0.91494 0.66546 0.68360 0.81551 0.70240                      00000560
PAYRAT780012 0.75472 0.90802 0.66440 0.67844 0.80934 0.69709                      00000570
PAYRAT7900 1 0.79592 0.95759 0.70067 0.71548 0.85353 0.73514                      00000580
PAYRAT7900 2 0.79371 0.95493 0.65872 0.71348 0.85115 0.73310                      00000590
PAYRAT7900 3 0.79297 0.95404 0.64807 0.71282 0.85036 0.73242                      00000600
PAYRAT7900 4 0.80194 0.95414 0.69669 0.70256 0.86212 0.74066                      00000610
PAYRAT7900 5 0.79310 0.94362 0.68501 0.69482 0.85264 0.73250                      00000620
PAYRAT7900 6 0.77938 0.92730 0.67709 0.68200 0.83787 0.71963                      00000630
PAYRAT7900 7 0.76753 0.91319 0.66679 0.67242 0.82513 0.70888                      00000640
PAYRAT7900 8 0.77062 0.91663 0.66931 0.67495 0.82824 0.71155                      00000650
PAYRAT7900 9 0.76500 0.91018 0.66460 0.67020 0.82241 0.70654                      00000660
PAYRAT790010 0.73628 0.87619 0.64076 0.64631 0.79119 0.70032                      00000670
PAYRAT790011 0.75776 0.90157 0.65831 0.66386 0.81463 0.69986                      00000680
PAYRAT790012 0.75248 0.89529 0.65372 0.65923 0.80895 0.69498                      00000690
PBLACK780011 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419                      00000700
PBLACK780012 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419                      00000710
PBLACK7900 1 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419                      00000720
PBLACK7900 2 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419                      00000730
PBLACK7900 3 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419                      00000740
PBLACK7900 4 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657                      00000750
PBLACK7900 5 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657                      00000760
PBLACK7900 6 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657                      00000770
PBLACK7900 7 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657                      00000780
PBLACK7900 8 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657                      00000790
PBLACK7900 9 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657                      00000800
PBLACK790010 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657                      00000810
PBLACK790011 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657                      00000820
PBLACK790012 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657                      00000830
PURBAN780011 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                      00000840
PURBAN780012 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                      00000850
PURBAN7900 1 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                      00000860
PURBAN7900 2 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                      00000870
PURBAN7900 3 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659                      00000880
PURBAN7900 4 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                      00000890
PURBAN7900 5 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                      00000900
PURBAN7900 6 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                      00000910
PURBAN7900 7 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                      00000920
PURBAN7900 8 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                      00000930
PURBAN7900 9 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                      00000940
PURBAN790010 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                      00000950
PURBAN790011 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                      00000960
PURBAN790012 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813                      00000970
Q     7900 1   5.771   4.875   3.543   4.939   4.133   3.949   3.817            00000980
Q     7900 2   4.199   7.030   7.023   6.938   6.849   3.029   1.304            00000990
Q     7900 3   1.003   0.812   0.432   0.722   0.291   0.301   1.645            00001000
Q     7900 4   0.281   0.201   0.020                                            00001010
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NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE

QR	7900 1	1.194	0.928	1.147	0.830	0.691	0.981		00001020
QR	7900 2	1.010	0.785	0.972	0.700	0.582	0.826		00001030
QR	7900 3	0.741	0.569	0.703	0.506	0.417	0.607		00001040
QR	7900 4	1.022	0.796	0.985	0.709	0.589	0.838		00001050
QR	7900 5	0.859	0.666	0.825	0.594	0.491	0.698		00001060
QR	7900 6	0.822	0.636	0.781	0.572	0.466	0.672		00001070
QR	7900 7	0.795	0.615	0.763	0.548	0.452	0.642		00001080
QR	7900 8	0.873	0.664	0.839	0.620	0.499	0.704		00001090
QR	7900 9	1.446	1.033	1.396	1.126	0.846	1.163		00001100
QR	790010	1.446	1.057	1.394	1.118	0.844	1.184		00001110
QR	790011	1.439	1.055	1.380	1.090	0.831	1.140		00001120
QR	790012	1.421	1.021	1.361	1.108	0.826	1.116		00001130
QR	790013	0.543	0.612	0.687	0.353	0.316	0.519		00001140
QR	790014	0.234	0.264	0.294	0.152	0.136	0.223		00001150
QR	790015	0.180	0.203	0.228	0.117	0.104	0.171		00001160
QR	790016	0.145	0.162	0.184	0.095	0.085	0.139		00001170
QR	790017	0.077	0.087	0.099	0.050	0.045	0.074		00001180
QR	790018	0.130	0.146	0.164	0.084	0.075	0.123		00001190
QR	790019	0.052	0.059	0.066	0.034	0.030	0.050		00001200
QR	790020	0.053	0.061	0.068	0.035	0.031	0.051		00001210
QR	790021	0.295	0.333	0.373	0.191	0.172	0.281		00001220
QR	790022	0.050	0.057	0.064	0.033	0.029	0.048		00001230
QR	790023	0.036	0.041	0.046	0.023	0.021	0.034		00001240
QR	790024	0.004	0.004	0.005	0.002	0.002	0.003		00001250
QR	8000 1	0.543	0.612	0.687	0.353	0.316	0.519		00001260
QR	8000 2	0.234	0.264	0.294	0.152	0.136	0.223		00001270
QR	8000 3	0.180	0.203	0.228	0.117	0.104	0.171		00001280
QR	8000 4	0.145	0.164	0.184	0.095	0.085	0.139		00001290
QR	8000 5	0.077	0.087	0.099	0.050	0.045	0.074		00001300
QR	8000 6	0.130	0.146	0.164	0.084	0.075	0.123		00001310
QR	8000 7	0.052	0.059	0.066	0.034	0.030	0.050		00001320
QR	8000 8	0.053	0.061	0.068	0.035	0.031	0.051		00001330
QR	8000 9	0.295	0.333	0.373	0.191	0.172	0.281		00001340
QR	800010	0.050	0.057	0.064	0.033	0.029	0.048		00001350
QR	800011	0.036	0.041	0.046	0.023	0.021	0.034		00001360
QR	800012	0.002	0.004	0.005	0.002	0.002	0.003		00001370
QUP	7900 1	9.500	9.500	9.500	9.500	9.500	9.500	9.500	00001380
QUP	7900 2	9.500	9.500	9.500	9.500	9.500	9.500	9.500	00001390
QUP	7900 3	9.500	9.500	9.500	9.500	9.500	9.500	9.500	00001400
QUP	7900 4	9.500	9.500	9.500					00001410
TOTALQ	7900 1	54.642							00001420
UNEMP	780011	7.25950	5.59296	5.80069	4.31870	5.46473	6.86826		00001430
UNEMP	780012	6.77025	5.37682	5.21789	4.06372	5.17568	6.40670		00001440
UNEMP	7900 1	6.55071	5.32407	5.14266	3.91838	5.11452	6.41520		00001450
UNEMP	7900 2	6.45362	5.39050	5.29438	4.03154	5.03494	6.48180		00001460
UNEMP	7900 3	7.10098	6.06248	5.57989	4.87649	5.06163	6.68484		00001470
UNEMP	7900 4	7.82971	7.02640	6.75629	6.55863	5.77259	7.31397		00001480
UNEMP	7900 5	7.85113	6.03158	6.63184	6.27521	5.72240	7.34969		00001490
UNEMP	7900 6	7.22832	5.65171	6.36364	5.13438	5.17538	7.07562		00001500
UNEMP	7900 7	6.69543	5.25757	5.06279	4.32079	4.52632	6.44215		00001510

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE

```
UNEMP 7900 8 6.47159 5.21817 5.12821 4.37766 4.70286 6.22699                00001520
UNEMP 7900 9 6.78741 5.69544 5.59367 4.69100 4.76190 6.22699                00001530
UNEMP 790010 7.15005 6.09870 5.70736 4.80954 5.25050 7.05068                00001540
UNEMP 790011 6.83947 5.68016 5.83232 4.56579 5.01853 6.23712                00001550
UNEMP 790012 6.79873 5.62886 5.11168 4.01963 4.82517 5.82136                00001560
UNEMP 8000 1 6.47263 5.55269 4.89611 4.01420 4.44884 5.54271                00001570
UNEMP 8000 2 6.25199 5.14035 5.31324 4.12738 4.96267 5.82427                00001580
UNEMP 8000 3 6.06093 4.27907 5.42153 4.50485 4.88345 5.97208                00001590
UNEMP 8000 4 7.15690 6.33897 6.72317 4.85419 4.98816 7.03501                00001600
UNEMP 8000 5 7.09445 5.74225 6.17622 4.71034 4.49586 6.85771                00001610
UNEMP 8000 6 7.07982 5.60698 6.21630 4.63667 4.30121 6.41656                00001620
UNEMP 8000 7 6.03157 5.10758 5.84809 4.15694 4.28266 5.98090                00001630
UNEMP 8000 8 5.81145 5.11645 5.22079 3.77150 4.28935 5.46362                00001640
UNEMP 8000 9 6.61189 5.73557 5.87837 4.49372 4.87919 5.79923                00001650
UNEMP 800010 6.82753 5.95029 6.08205 4.20628 4.78091 5.89236                00001660
UNEMP 800011 6.57584 5.38848 6.13256 4.03242 4.63733 5.85359                00001670
UNEMP 800012 6.62052 5.38853 6.01449 4.08000 4.59244 5.78512                00001680
W     80     1  1.000    1.000    0.000    0.00    0.00    0.000    0.100   00000050
TOTALQ80     55.500                                                          00000060
DEPQ  80     10.850                                                          00000070
```

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA (INITIALIZING OF FY80, HS6L)
RESULTS FILE

```
XO      790000 0.81756 0.82425 0.58751 0.17964 0.56681 0.32852
YO      79 1 1 0.28140 0.28260 0.20296 0.06137 0.18371 0.11264
YO      79 1 2 0.29264 0.29347 0.21001 0.06388 0.16167 0.11672
YO      79 2 1 0.02278 0.02299 0.01781 0.00544 0.01416 0.00996
YO      79 2 2 0.01925 0.01941 0.01384 0.00423 0.01100 0.00773
DEP     7900 1 0.8239  0.8314  0.5923  0.1813  0.4654  0.3326
DEP     7900 2 0.3899  0.3924  0.2806  0.0858  0.2196  0.1571
DEP     7900 3 0.2338  0.2350  0.1679  0.0514  0.1326  0.0940
DEP     7900 4 0.2092  0.2112  0.1595  0.0460  0.1191  0.0840
DEP     7900 5 0.1160  0.1170  0.0834  0.0255  0.0655  0.0466
DEP     7900 6 0.1067  0.1079  0.0764  0.0236  0.0598  0.0426
DEP     7900 7 0.0724  0.0732  0.0519  0.0159  0.0399  0.0289
DEP     7900 8 0.0710  0.0716  0.0511  0.0155  0.0446  0.0284
DEP     7900 9 0.4157  0.4190  0.2984  0.0910  0.2407  0.1659
DEP     790010 0.0703  0.0709  0.0505  0.0153  0.0422  0.0281
DEP     790011 0.0476  0.0478  0.0343  0.0104  0.0306  0.0190
DEP     790012 0.0055  0.0055  0.0039  0.0012  0.0030  0.0022
END     79
```

READING OF INPUT DATA COMPLETE.

MATRIX GENERATION COMPLETE
1006 CARDS WRITTEN TO SCRATCH FILE NUMBER 12

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION (HS6½, FY80)
SUMMARY REPORT FOR ALL AREAS

	TOTAL FOR HORIZON	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
ADVERTISING	7.1768	0.0199	0.0948	0.1363	0.6752	0.4436	0.4635	0.4659	0.4908	0.8631
[illegible] RUITING	92.9810	7.7484	7.7484	7.7484	7.7484	7.7484	7.7484	7.7484	7.7484	7.7484
[illegible] ION [illegible]	100.1578	7.7684	7.8432	7.8827	8.2237	8.1920	8.2119	8.2143	8.2392	8.6115
[illegible]	60.8978	3.5276	4.1338	6.3329	6.0400	6.3396	6.0188	4.4521	4.1274	5.3420
[illegible]	9.5896	3.0817	1.4568	0.8735	0.7830	0.4336	0.3582	0.2697	0.2695	1.5573
[illegible]	[illegible]	1.2544	2.1711	2.1848	3.2446	3.1822	3.2558	2.7375	3.3946	6.0623
[illegible]	37.3892	4.7361	3.6279	3.0583	4.0276	3.6158	3.6540	3.0072	3.6641	7.6197
[illegible]	[illegible]	5.7710	4.8750	3.5430	4.9390	4.1330	3.9490	3.8170	4.1990	7.0300
[illegible]	[illegible]	1.0349	1.2471	0.4847	0.9114	0.5172	0.2950	0.8098	0.5349	0.0

AD-A114 009 DUKE UNIV DURHAM NC CENTER FOR APPLIED BUSINESS RESEARCH F/G 5/9
A MULTI-YEAR BUDGET GENERATION PROGRAM FOR USE IN NAVY RECRUITI--ETC(U)
OCT 81 R C MOREY, J M MCCANN, D P ROBINSON N00014-80-C-0200
UNCLASSIFIED ONR-200-2 NL

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NAVY RECRUITING COMMAND

RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

SUMMARY REPORT FOR ALL AREAS

	TOTAL FOR HORIZON	JUL 80	AUG 80	SEP 80	OCT 80	NOV 80	DEC 81	JAN 81	FEB 81	MAR 81
ADVERTISING	2.1768	1.0004	1.3611	1.3691						
RECRUITING	92.9810	7.7484	7.7484	7.7484						
TOTAL COST (MILLION $)	100.1578	8.7488	9.1095	9.1125						
CONTRACTS	60.8278	5.2264	5.9600	5.3975						
INITIAL DELAY ENTRY POOL	9.5896	0.2668	0.1812	0.0203	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	47.7956	6.5699	7.0167	6.4217	3.6821	1.6453	0.9881	0.8867	0.4901	0.4527
TOTAL ACCESSIONS	57.3852	6.7367	7.1979	6.4420	3.6821	1.6453	0.9881	0.8867	0.4901	0.4527
QUOTAS	63.0630	7.0230	6.9350	6.8490	3.0290	1.3040	1.0030	0.8120	0.4320	0.7220
SHORTFALLS	6.5303	0.2883	0.0	0.4070	0.0	0.0	0.0149	0.0	0.0	0.2693

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
SUMMARY REPORT FOR ALL AREAS

	TOTAL FOR HORIZON	APR 87	MAY 87	JUN 87	JUL 87	AUG 87	SEP 87
ADVERTISING	7.1768						
RECRUITING	92.9810						
TOTAL COST (MILLION $)	100.1578						
CONTRACTS	60.8978						
INITIAL DELAY ENTRY POOL	9.5896	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	47.7956	0.3054	0.3048	1.7672	0.2998	0.2048	0.0232
TOTAL ACCESSIONS	57.3852	0.3054	0.3048	1.7672	0.2998	0.2048	0.0232
QUOTAS	63.0630	0.2910	0.3010	1.6550	0.2810	0.2010	0.0200
SHORTFALLS	6.5303	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND

RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR HORIZON	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
CONTRACTS FOR REGION 1	15.4508	0.9246	1.0623	1.0943	1.5209	1.6103	1.5537	1.1111	1.0373	1.3505
CONTRACTS FOR REGION 2	15.8863	0.9363	1.0608	1.1119	1.6006	1.6557	1.5685	1.1551	1.0892	1.4011
CONTRACTS FOR REGION 3	12.1255	0.6699	0.8025	0.8460	1.2049	1.2896	1.1993	0.9116	0.8232	1.0590
CONTRACTS FOR REGION 4	3.2707	0.1964	0.2327	0.2457	0.3129	0.3326	0.3263	0.2420	0.2196	0.2891
CONTRACTS FOR REGION 5	8.0333	0.4366	0.5402	0.5699	0.7790	0.7985	0.7608	0.5810	0.5444	0.7129
CONTRACTS FOR REGION 6	6.1812	0.3660	0.4356	0.4642	0.6219	0.6527	0.6102	0.4514	0.4138	0.5293
TOTAL (1000'S)	60.8978	3.5276	4.1338	4.3329	6.0400	6.3394	6.0188	4.4521	4.1274	5.3420
ACCESSIONS FOR REGION 1	14.5788	1.2205	0.9323	0.7785	1.0210	0.9177	0.9355	0.7623	0.9248	1.9324
ACCESSIONS FOR REGION 2	14.9158	1.2321	0.9349	0.7865	1.0526	0.9450	0.9531	0.7826	0.9576	1.9862
ACCESSIONS FOR REGION 3	11.2628	0.8798	0.6878	0.5858	0.7848	0.7200	0.7298	0.6029	0.7292	1.4912
ACCESSIONS FOR REGION 4	3.1112	0.2653	0.2039	0.1726	0.2177	0.1922	0.1969	0.1630	0.1970	0.4146
ACCESSIONS FOR REGION 5	7.6658	0.4492	0.4908	0.5123	0.5336	0.4676	0.4699	0.3898	0.4843	1.0236
ACCESSIONS FOR REGION 6	5.8507	0.4893	0.3782	0.3226	0.4182	0.3733	0.3739	0.3066	0.3712	0.7717
TOTAL (1000'S)	57.3852	4.7361	3.4279	3.0583	4.0276	3.6158	3.6540	3.0072	3.6641	7.6197
QUOTAS	55.5000	5.7710	4.8750	3.5430	4.9390	4.1330	3.9490	3.8170	4.1990	7.0300
SHORTFALLS	0.0	1.0349	1.2471	0.4847	0.9114	0.5172	0.2950	0.8098	0.5349	0.0

NAVY RECRUITING COMMAND

RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR HORIZON	JUL 86	AUG 86	SEP 86
CONTRACTS FOR REGION 1	15.4408	1.3294	1.4787	1.3676
CONTRACTS FOR REGION 2	15.8463	1.3767	1.5048	1.3882
CONTRACTS FOR REGION 3	12.1255	1.0487	1.1722	1.0977
CONTRACTS FOR REGION 4	3.2707	0.2761	0.3068	0.2905
CONTRACTS FOR REGION 5	8.0333	0.6839	0.9147	0.7115
CONTRACTS FOR REGION 6	8.1812	0.8115	0.8827	0.5197
TOTAL (1000$)	60.8978	5.2264	5.9600	5.3975
ACCESSIONS FOR REGION 1	14.9788	1.7129	1.8108	1.6303
ACCESSIONS FOR REGION 2	14.9158	1.7610	1.8521	1.6671
ACCESSIONS FOR REGION 3	11.2628	1.3381	1.4234	1.2952
ACCESSIONS FOR REGION 4	3.1112	0.3611	0.3816	0.3551
ACCESSIONS FOR REGION 5	7.6698	0.8801	1.0089	0.8557
ACCESSIONS FOR REGION 6	5.8507	0.6764	0.7208	0.6485
TOTAL (1000*S)	57.3892	6.7347	7.1979	6.4420
QUOTAS	55.5000	7.0230	6.9350	6.8490
SHORTFALLS	0.0	0.2883	0.0	0.4070

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR POST-MORTION	OCT 80	NOV 80	DEC 81	JAN 81	FEB 81	MAR 81	APR 81	MAY 81	JUN 81
ACCESSIONS FOR REGION 1	2.7370	0.8788	0.4157	0.2500	0.2233	0.1236	0.1143	0.0775	0.0761	0.4455
ACCESSIONS FOR REGION 2	2.8107	0.9038	0.4268	0.2558	0.2298	0.1274	0.1180	0.0801	0.0778	0.4563
ACCESSIONS FOR REGION 3	2.1730	0.6979	0.3307	0.1978	0.1779	0.0984	0.0901	0.0613	0.0602	0.3537
ACCESSIONS FOR REGION 4	0.5758	0.1847	0.0874	0.0527	0.0472	0.0260	0.0244	0.0162	0.0159	0.0938
ACCESSIONS FOR REGION 5	1.4693	0.4661	0.2193	0.1329	0.1199	0.067	0.0609	0.0402	0.0449	0.2431
ACCESSIONS FOR REGION 6	1.0842	0.3508	0.1654	0.0989	0.0884	0.049	0.0449	0.0301	0.0299	0.1749
TOTAL (1000'S)	10.8501	3.4821	1.6453	0.9881	0.8867	0.4901	0.4527	0.3054	0.3048	1.7672
QUOTAS	10.8500	3.0290	1.3040	1.0030	0.8120	0.4320	0.7220	0.2910	0.3010	1.6450
SHORTFALLS	0.0	0.0	0.0	0.0149	0.0	0.0	0.2693	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR POST-HORIZON	JUL 01	AUG 01	SEP 01
ACCESSIONS FOR REGION 1	2.7370	0.0753	0.0510	0.0059
ACCESSIONS FOR REGION 2	2.8107	0.0771	0.0518	0.0060
ACCESSIONS FOR REGION 3	2.1730	0.0556	0.0405	0.0047
ACCESSIONS FOR REGION 4	0.5758	0.0157	0.0106	0.0012
ACCESSIONS FOR REGION 5	1.4653	0.0424	0.0308	0.0031
ACCESSIONS FOR REGION 6	1.0842	0.0295	0.0201	0.0023
TOTAL (1000:S)	10.0501	0.2958	0.2048	0.0232
QUOTAS	10.0500	0.2810	0.2010	0.0200
SHORTFALLS	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION (FY80, FISCAL)
DETAILED REPORT FOR AREA

	TOTAL FOR HORIZON	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
ADVERTISING	1.8104	0.0051	0.0240	0.0340	0.1202	0.1125	0.1191	0.1167	0.1238	0.2172
RECRUITING	23.4533	1.9546	1.9546	1.9546	1.9546	1.9546	1.9546	1.9546	1.9546	1.9546
TOTAL COST (MILLION $)	25.2636	1.9597	1.9786	1.9886	2.0748	2.0671	2.0737	2.0713	2.0784	2.1718
CONTRACTS	15.4608	0.9246	1.0623	1.0963	1.5209	1.6103	1.5537	1.1111	1.0373	1.3505
INITIAL DELAY ENTRY POOL	2.6667	0.7868	0.3726	0.2293	0.1998	0.1108	0.1819	0.0691	0.0678	0.3970
ACCESSIONS	12.1321	0.4336	0.5599	0.5552	0.8212	0.8069	0.8336	0.6931	0.8570	1.5354
TOTAL ACCESSIONS	14.8788	1.2205	0.9325	0.7785	1.0210	0.9177	0.9355	0.7623	0.9248	1.9324
QUOTAS	1.7950	0.5430	0.2340	0.1800	0.1450	0.0770	0.1300	0.0520	0.0530	0.2550
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 01

	TOTAL FOR HORIZON	JUL 80	AUG 80	SEP 80	OCT 80	NOV 80	DEC 81	JAN 81	FEB 81	MAR 81
ADVERTISING	1.8104	0.2538	0.3385	0.3455						
RECRUITING	23.4553	1.9546	1.9546	1.9546						
TOTAL COST (MILLION $)	25.2656	2.2084	2.2931	2.3002						
CONTRACTS	15.4408	1.3294	1.4787	1.3676						
INITIAL DELAY ENTRY POOL	2.4467	0.0671	0.0455	0.0053	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	12.1321	1.6458	1.7654	1.6251	0.8788	0.4157	0.2500	0.2233	0.1236	0.1143
TOTAL ACCESSIONS	14.5788	1.7129	1.8109	1.6303	0.8788	0.4157	0.2500	0.2233	0.1236	0.1143
QUOTAS	1.7990	0.0500	0.0360	0.0040	0.5430	0.2340	0.1800	0.1450	0.0770	0.1300
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0157

NAVY RECRUITING COMMAND
RECRUITING ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 01

	TOTAL FOR HORIZON	APR 81	MAY 81	JUN 81	JUL 81	AUG 81	SEP 81
ADVERTISING	1.8104						
RECRUITING	23.4553						
TOTAL COST (MILLION $)	25.2656						
CONTRACTS	15.4508						
INITIAL DELAY ENTRY POOL	2.4447	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	12.1321	0.0775	0.0761	0.4655	0.0753	0.0510	0.0059
TOTAL ACCESSIONS	14.5788	0.0775	0.0761	0.4655	0.0753	0.0510	0.0059
QUOTAS	1.7990	0.0220	0.0530	0.2950	0.0500	0.0360	0.0040
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
ADVERTISING	1.8591	0.0052	0.0250	0.0349	0.1255	0.1157	0.1210	0.1213	0.1294	0.2242
RECRUITING	24.0867	2.0072	2.0072	2.0072	2.0072	2.0072	2.0072	2.0072	2.0072	2.0072
TOTAL COST (MILLION $)	25.9459	2.0124	2.0322	2.0422	2.1328	2.1230	2.1282	2.1285	2.1366	2.2314
CONTRACTS	15.8463	0.9341	1.0605	1.1119	1.6004	1.6557	1.5885	1.1551	1.0892	1.4011
INITIAL DELAY ENTRY POOL	2.6669	0.7940	0.3747	0.2246	0.2017	0.1117	0.1030	0.0701	0.0684	0.4001
ACCESSIONS	12.4490	0.4381	0.5602	0.5621	0.8509	0.8333	0.8500	0.7125	0.8893	1.5860
TOTAL ACCESSIONS	14.9160	1.2321	0.9349	0.7869	1.0526	0.9450	0.9531	0.7826	0.9576	1.9862
QUOTAS	2.0310	0.6120	0.2640	0.2030	0.1640	0.0870	0.1460	0.0590	0.0610	0.3330
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 2

	TOTAL FOR HORIZON	JUL 80	AUG 80	SEP 80	OCT 80	NOV 80	DEC 81	JAN 81	FEB 81	MAR 81
ADVERTISING	1.8291	0.2613	0.3447	0.3510						
RECRUITING	24.0867	2.0072	2.0072	2.0072						
TOTAL COST (MILLION $)	25.9459	2.2685	2.3519	2.3582						
CONTRACTS	15.8403	1.3767	1.5048	1.3882						
INITIAL DELAY ENTRY POOL	2.4669	0.0677	0.0456	0.0053	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	12.4490	1.6983	1.8064	1.6619	0.9038	0.4268	0.2558	0.2299	0.1274	0.1180
TOTAL ACCESSIONS	14.9159	1.7660	1.8521	1.6671	0.9038	0.4268	0.2558	0.2299	0.1274	0.1180
QUOTAS	2.0310	0.0570	0.0410	0.0040	0.6120	0.2640	0.2030	0.1640	0.0870	0.1460
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0280

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 2

	TOTAL FOR HORIZON	APR 81	MAY 81	JUN 81	JUL 81	AUG 81	SEP 81
ADVERTISING	1.8591						
RECRUITING	24.0867						
TOTAL COST (MILLION $)	25.9459						
CONTRACTS	15.8463						
INITIAL DELAY ENTRY POOL	2.4669	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	12.4490	0.0801	0.0778	0.4563	0.0771	0.0518	0.0060
TOTAL ACCESSIONS	14.9158	0.0801	0.0778	0.4563	0.0771	0.0518	0.0060
QUOTAS	2.0310	0.0590	0.0610	0.3330	0.0570	0.0410	0.0040
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 3

	TOTAL FOR HORIZON	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
ADVERTISING	1.4374	0.0038	0.0188	0.0269	0.0949	0.0902	0.0925	0.0946	0.0980	0.1708
RECRUITING	18.6222	1.5518	1.5518	1.5518	1.5518	1.5518	1.5518	1.5518	1.5518	1.5518
TOTAL COST (MILLION $)	20.0596	1.5557	1.5707	1.5787	1.6467	1.6421	1.6443	1.6464	1.6499	1.7227
CONTRACTS	12.1255	0.6699	0.8025	0.8468	1.2049	1.2896	1.1993	0.9116	0.8232	1.0590
INITIAL DELAY ENTRY POOL	1.7583	0.5656	0.2680	0.1603	0.1636	0.0796	0.0730	0.0496	0.0488	0.2850
ACCESSIONS	9.5046	0.3142	0.4198	0.4255	0.6409	0.6403	0.6518	0.5533	0.6804	1.2063
TOTAL ACCESSIONS	11.2628	0.8798	0.6878	0.9858	0.7845	0.7200	0.7248	0.6029	0.7292	1.4912
QUOTAS	2.2780	0.6870	0.2940	0.2280	0.1840	0.0990	0.1640	0.0660	0.0680	0.3730
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 3

	TOTAL FOR HORIZON	JUL 80	AUG 80	SEP 80	OCT 80	NOV 80	DEC 80	JAN 81	FEB 81	MAR 81
ADVERTISING	1.6374	0.2012	0.2686	0.2772						
RECRUITING	18.6222	1.5518	1.5518	1.5518						
TOTAL COST (MILLION $)	20.0596	1.7530	1.8204	1.8290						
CONTRACTS	12.1255	1.0487	1.1722	1.0977						
INITIAL DELAY ENTRY POOL	1.7503	0.0482	0.0328	0.0037	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	9.5046	1.2899	1.3907	1.2915	0.6979	0.3307	0.1978	0.1779	0.0984	0.0901
TOTAL ACCESSIONS	11.2628	1.3381	1.4234	1.2952	0.6979	0.3307	0.1978	0.1779	0.0984	0.0901
QUOTAS	2.2780	0.0640	0.0460	0.0050	0.6870	0.2940	0.2280	0.1840	0.0990	0.1640
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0302	0.0061	0.0006	0.0739

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	APR 81	MAY 81	JUN 81	JUL 81	AUG 81	SEP 81
ADVERTISING	1.4374						
RECRUITING	18.6222						
TOTAL COST (MILLION $)	20.0596						
CONTRACTS	12.1255						
INITIAL DELAY ENTRY POOL	1.7583	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	9.5046	0.0613	0.0602	0.3537	0.0598	0.0405	0.0047
TOTAL ACCESSIONS	11.2628	0.0613	0.0602	0.3537	0.0598	0.0405	0.0047
QUOTAS	7.2780	0.0660	0.0680	0.3730	0.0640	0.0460	0.0050
SHORTFALLS	0.0	0.0047	0.0078	0.0193	0.0042	0.0055	0.0003

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 4

	TOTAL FOR HORIZON	OCT 79	NOV 79	DEC 79	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
ADVERTISING	0.3809	0.0011	0.0050	0.0072	0.0248	0.0234	0.0251	0.0253	0.0261	0.0461
RECRUITING	4.9345	0.4112	0.4112	0.4112	0.4112	0.4112	0.4112	0.4112	0.4112	0.4112
TOTAL COST (MILLION $)	5.3154	0.4123	0.4162	0.4184	0.4360	0.4346	0.4363	0.4365	0.4373	0.4573
CONTRACTS	3.2707	0.1965	0.2327	0.2457	0.3129	0.3326	0.3263	0.2420	0.2196	0.2891
INITIAL DELAY ENTRY POOL	0.5376	0.1731	0.0819	0.0491	0.0439	0.0244	0.0225	0.0152	0.0148	0.0869
ACCESSIONS	2.5736	0.0921	0.1220	0.1236	0.1737	0.1678	0.1744	0.1478	0.1822	0.3277
TOTAL ACCESSIONS	3.1112	0.2652	0.2039	0.1726	0.2177	0.1922	0.1969	0.1630	0.1970	0.4194
QUOTAS	1.1690	0.3530	0.1520	0.1170	0.0950	0.0500	0.0840	0.0340	0.0350	0.1910
SHORTFALLS	0.0877	0.0877	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 4

	TOTAL FOR HORIZON	JUL 80	AUG 80	SEP 80	OCT 80	NOV 80	DEC 81	JAN 81	FEB 81	MAR 81
ADVERTISING	0.3809	0.0530	0.0704	0.0734						
RECRUITING	4.9345	0.4112	0.4112	0.4112						
TOTAL COST (MILLION $)	5.3154	0.4642	0.4816	0.4846						
CONTRACTS	3.2707	0.2761	0.3068	0.2905						
INITIAL DELAY ENTRY POOL	0.5376	0.0146	0.0099	0.0011	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	2.5736	0.3465	0.3719	0.3439	0.1847	0.0874	0.0527	0.0472	0.0260	0.0244
TOTAL ACCESSIONS	3.1112	0.3611	0.3818	0.3451	0.1847	0.0874	0.0527	0.0472	0.0260	0.0244
QUOTAS	1.1690	0.0330	0.0230	0.0020	0.3530	0.1520	0.1170	0.0950	0.0500	0.0840
SHORTFALLS	0.0877	0.0	0.0	0.0	0.1683	0.0646	0.0643	0.0478	0.0240	0.0596

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 6

	TOTAL FOR HORIZON	APR 81	MAY 81	JUN 81	JUL 81	AUG 81	SEP 81
ADVERTISING	0.3809						
RECRUITING	4.9345						
TOTAL COST (MILLION $)	5.3154						
CONTRACTS	3.2707						
INITIAL DELAY ENTRY POOL	0.9376	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	2.5736	0.0162	0.0159	0.0938	0.0137	0.0106	0.0012
TOTAL ACCESSIONS	3.1112	0.0162	0.0159	0.0938	0.0137	0.0106	0.0012
QUOTAS	1.1690	0.0340	0.0350	0.1910	0.0330	0.0230	0.0020
SHORTFALLS	0.0877	0.0178	0.0191	0.0972	0.0173	0.0124	0.0008

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	OCT 79	NOV 79	DEC 79	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
ADVERTISING	0.9719	0.0025	0.0123	0.0172	0.0610	0.0562	0.0590	0.0612	0.0646	0.1197
RECRUITING	12.5913	1.0493	1.0493	1.0493	1.0493	1.0493	1.0493	1.0493	1.0493	1.0493
TOTAL COST (MILLION $)	13.5632	1.0518	1.0615	1.0665	1.1103	1.1055	1.1083	1.1104	1.1139	1.1690
CONTRACTS	8.0333	0.4366	0.8402	0.8699	0.7790	0.7985	0.7608	0.5810	0.5444	0.7129
INITIAL DELAY ENTRY POOL	1.3972	0.4448	0.2097	0.1266	0.1137	0.0624	0.0571	0.0381	0.0426	0.2299
ACCESSIONS	6.2616	0.2048	0.2810	0.2857	0.4199	0.4050	0.4128	0.3517	0.4417	0.7937
TOTAL ACCESSIONS	7.6688	0.6492	0.6908	0.8123	0.5336	0.6676	0.6699	0.3898	0.5853	1.0236
QUOTAS	1.0460	0.3160	0.1360	0.1040	0.0850	0.0450	0.0750	0.0300	0.0310	0.1720
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND

RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

DETAILED REPORT FOR WEEK 5

	TOTAL FOR HORIZON	JUL 80	AUG 80	SEP 80	OCT 80	NOV 80	DEC 81	JAN 81	FEB 81	MAR 81
ADVERTISING	0.9739	0.1326	0.2056	0.1801						
RECRUITING	12.5913	1.0493	1.0493	1.0493						
TOTAL COST (MILLION $)	13.5632	1.1819	1.2547	1.2294						
CONTRACTS	0.0333	0.6839	0.9147	0.7115						
INITIAL DELAY ENTRY POOL	1.3972	0.0403	0.0292	0.0029	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	6.2686	0.8398	0.9796	0.8529	0.4661	0.2193	0.1329	0.1199	0.0657	0.0609
TOTAL ACCESSIONS	7.6658	0.8801	1.0089	0.8557	0.4661	0.2193	0.1329	0.1199	0.0657	0.0609
QUOTAS	1.0460	0.0290	0.0210	0.0020	0.3160	0.1360	0.1040	0.0850	0.0450	0.0750
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0141

RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 3

	TOTAL FOR HORIZON	APR 81	MAY 81	JUN 81	JUL 81	AUG 81	SEP 81
ADVERTISING	0.9719						
RECRUITING	12.5913						
TOTAL COST (MILLION $)	13.5632						
CONTRACTS	8.0333						
INITIAL DELAY ENTRY POOL	1.3972	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	6.2686	0.0402	0.0449	0.2431	0.0424	0.0308	0.0031
TOTAL ACCESSIONS	7.6658	0.0402	0.0449	0.2431	0.0424	0.0308	0.0031
QUOTAS	1.0400	0.0300	0.0[illegible]	0.1720	0.0290	0.0210	0.0020
SHORTFALLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 6

	TOTAL FOR HORIZON	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
ADVERTISING	0.7171	0.0021	0.0098	0.0140	0.0488	0.0455	0.0469	0.0469	0.0488	0.0852
RECRUITING	9.2910	0.7742	0.7742	0.7742	0.7742	0.7742	0.7742	0.7742	0.7742	0.7742
TOTAL COST (MILLION $)	10.0081	0.7763	0.7841	0.7883	0.8231	0.8198	0.8212	0.8212	0.8231	0.8594
CONTRACTS	6.1812	0.3660	0.4356	0.4642	0.6219	0.6527	0.6102	0.4514	0.4130	0.5295
INITIAL DELAY ENTRY POOL	0.9831	0.3116	0.1500	0.0898	0.0802	0.0445	0.0407	0.0276	0.0271	0.1584
ACCESSIONS	4.8677	0.1716	0.2281	0.2328	0.3379	0.3288	0.3333	0.2790	0.3441	0.6133
TOTAL ACCESSIONS	5.8507	0.4893	0.3782	0.3226	0.4182	0.3733	0.3739	0.3066	0.3712	0.7717
QUOTAS	1.7160	0.5190	0.2230	0.1710	0.1390	0.0740	0.1230	0.0500	0.0510	0.2810
SHORTFALLS	0.0297	0.0297	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 6

	TOTAL FOR HORIZON	JUL 80	AUG 80	SEP 80	OCT 80	NOV 80	DEC 81	JAN 81	FEB 81	MAR 81
ADVERTISING	0.7171	0.0985	0.1335	0.1369						
RECRUITING	9.2910	0.7742	0.7742	0.7742						
TOTAL COST (MILLION $)	10.0081	0.8728	0.9077	0.9112						
CONTRACTS	6.1812	0.5115	0.5827	0.5619						
INITIAL DELAY ENTRY POOL	0.2831	0.0268	0.0181	0.0021	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	4.8677	0.6496	0.7027	0.6464	0.3508	0.1654	0.0989	0.0884	0.0490	0.0449
TOTAL ACCESSIONS	5.8507	0.6764	0.7208	0.6485	0.3508	0.1654	0.0989	0.0884	0.0490	0.0449
QUOTAS	1.7160	0.0480	0.0340	0.0030	0.5190	0.2230	0.1710	0.1390	0.0740	0.1230
SHORTFALLS	0.0297	0.0	0.0	0.0	0.1682	0.0576	0.0721	0.0506	0.0250	0.0781

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA A

	TOTAL FOR HORIZON	APR 81	MAY 81	JUN 81	JUL 81	AUG 81	SEP 81
ADVERTISING	0.7171						
RECRUITING	9.2910						
TOTAL COST (MILLION $)	10.0081						
CONTRACTS	6.1812						
INITIAL DELAY ENTRY POOL	0.9831	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	4.8677	0.0301	0.0299	0.1749	0.0295	0.0201	0.0023
TOTAL ACCESSIONS	5.8507	0.0301	0.0299	0.1749	0.0295	0.0201	0.0023
QUOTAS	1.7160	0.0500	0.0510	0.2810	0.0680	0.0340	0.0030
SHORTFALLS	0.0297	0.0199	0.0211	0.1061	0.0385	0.0139	0.0007

Note we would expect it to increase over FY79 since a higher quota is demanded, a higher terminal DEP, a lower initial DEP, a lower number of male High School seniors, and a lower unemployment rate. All of these contribute to increase the costs rough $11 Million or about 11%. For FY80 we have the detailed results, together with the area distribution of the terminal DEP at the end of FY80.

In turn, the results could be used to initiate a run for FY81, given new quotas, new terminal DEP positions, new demographics, etc.

6.8 Numerical Illustrations for One Year Horizon for Upper Mental, High School Accessions

The following are the inputs and outputs for a single year analysis for male, Upper Mental (i.e., Mental Category I-III Upper), High School Graduate accessions. The year in question was FY79, the quota desired was 36,063 (approximately the number obtained in FY79), an initial DEP position (for Upper Mental, HSG's) at the beginning of FY79 of 7,150 and a desired DEP position at the end of FY79 of 6,627 (both of these were approximately the actual positions in FY79). The new set of base, scenario, control and results files are given, together with the outputs.

The only significant difference (from the user's standpoint) is the addition of a new demographic, that is not included in the base file and scenario file for analyzing HSG recruits (regardless of their mental category). The new entry is called BUPMN in the base file and UPMEN in the scenario file. To illustrate, the UPMEN for August, 1978 (two months before the start of the decision horizon) is ,for Area 1 (Area 100), .602755, i.e., 60.2755% of the male High School seniors in Area 1 are estimated to be of Upper Mental quality. We also note that the production elasticities are somewhat different for Upper Mental, HSG recruits than for HSG recruits in general. For example advertising and pay does not seem as effective for Upper Mental recruits as it does for HSG's in general. These are all contained in the base file and need not be of concern to the user.

The output shows that to meet this accession quota of 36,063, one needs to spend $38.825 Million with $2.06 Million of this on advertising (for placement costs) and $36.763 Million (1,413 recruiter man-years) on recruiters.

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA (FY79, UPPER MENTAL, HSG's)

PROBLEM PARAMETERS:

79	FY	FISCAL YEAR
1	MODE8	TYPE OF DELAY FACTORS TO USE
79.50	BUD1	TOTAL RECRUITING BUDGET
6.00	BUD2	TOTAL ADVERTISING BUDGET
0.0	PCTLO	LIMIT ON RECRUITER DECREASE PER PERIOD (%)
0.0	PCTHI	LIMIT ON RECRUITER GROWTH PER PERIOD (%)
0	IBTYPE	TYPE OF BUDGET CONSTRAINTS

PROBLEM SIZE VALUES:

6	IMAX	NUMBER OF REGIONS
12	JMAX	NUMBER OF TIME PERIODS
13	VMAX	NUMBER OF PERIODS ENTRY MAY BE DELAYED AFTER ENLISTMENT
24	TMAX	NUMBER OF TIME PERIODS (INCLUDING POST-HORIZON)
3	LMAX	NUMBER OF LAGGED PERIODS FOR PRODUCTION FUNCTIONS
2	NMAX	TYPES OF ADVERTISING

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE
==========

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ALPHA   0000 2   .0396   .0032   .0                                       00000050
ALPHA   0000 3   .0022   .00018  .0065                                    00000060
ANAME   0000 1LAMS                                                        00000070
ANAME   0000 2MEDIA                                                       00000080
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BBLK    0000 9 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657           00000190
BBLK    000010 0.11136 0.25553 0.13842 0.08138 0.15400 0.06657           00000200
BBLK    000011 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657           00000210
BBLK    000012 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657           00000220
BBLK    000013 0.11136 0.25553 0.13842 0.08138 0.15400 0.06657           00000230
BBLK    000014 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657           00000240
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BENL    0000 2 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944           00000260
BENL    0000 3 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944           00000270
BENL    0000 4 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944           00000280
BENL    0000 5 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944           00000290
BENL    0000 6 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000300
BENL    0000 7 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000310
BENL    0000 8 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000320
BENL    0000 9 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000330
BENL    000010 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000340
BENL    000011 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000350
BENL    000012 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000360
BENL    000013 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000370
BENL    000014 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696           00000380
BETA    00 1 1 0.4690  0.1057  0.0507  0.0498  0.0173  0.0126  0.0065   00000390
BETA    00 1 2 0.0099  0.0473  0.1473  0.0195  0.0099  0.0055           00000400
BETA    00 2 1 0.4316  0.0923  0.0868  0.0268  0.0178  0.0109  0.0205   00000410
BETA    00 2 2 0.0672  0.0391  0.1391  0.0148  0.0063  0.0018           00000420
BETA    00 3 1 0.3749  0.1582  0.0477  0.0252  0.0141  0.0263  0.0907   00000430
BETA    00 3 2 0.0493  0.0778  0.0722  0.0110  0.0039  0.0037           00000440
BETA    00 4 1 0.3352  0.1467  0.0581  0.0233  0.0284  0.0683  0.0765   00000450
BETA    00 4 2 0.0505  0.0511  0.1039  0.0053  0.0024  0.0053           00000460
BETA    00 5 1 0.3025  0.1592  0.0641  0.0390  0.0752  0.0747  0.0720   00000470
BETA    00 5 2 0.0637  0.0336  0.0519  0.0045  0.0022  0.0124           00000480
BETA    00 6 1 0.2772  0.1361  0.0806  0.0921  0.0862  0.0833  0.0819   00000490
BETA    00 6 2 0.0501  0.0247  0.0356  0.0046  0.0013  0.0013           00000500
BETA    00 7 1 0.2790  0.1545  0.1228  0.0962  0.0974  0.0664  0.0549   00000510
BETA    00 7 2 0.0334  0.0210  0.0252  0.0017  0.0015  0.0005           00000520
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NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE

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BETA  00 8 1  0.3802  0.1928  0.1104  0.0689  0.0571  0.0484  0.0303   00000530
BETA  00 8 2  0.0138  0.0220  0.0283  0.0016  0.0013  0.0024           00000540
BETA  00 9 1  0.4565  0.1396  0.0886  0.0640  0.0233  0.0142  0.0126   00000550
BETA  00 9 2  0.0169  0.0085  0.0364  0.0089  0.0078  0.0575           00000560
BETA  0010 1  0.4766  0.1312  0.1041  0.0326  0.0306  0.0177  0.0245   00000570
BETA  0010 2  0.0086  0.0010  0.0381  0.0047  0.0070  0.0160           00000580
BETA  0011 1  0.4859  0.1015  0.0924  0.0419  0.0311  0.0258  0.0117   00000590
BETA  0011 2  0.0055  0.0003  0.0347  0.0733  0.0222  0.0282           00000600
BETA  0012 1  0.5156  0.1403  0.0515  0.0326  0.0360  0.0200  0.0132   00000610
BETA  0012 2  0.0066  0.0018  0.1094  0.0111  0.0051  0.0041           00000620
BHSSR 0000 1 330363, 212292, 343660, 281977, 191068, 259900,           00000630
BHSSR 0000 2 330363, 212292, 343660, 281977, 191668, 259900,           00000640
BHSSR 0000 3 334331, 235877, 324847, 286987, 197695, 251348,           00000650
BHSSR 0000 4 334331, 235877, 324847, 286987, 197695, 251348,           00000660
BHSSR 0000 5 334331, 235877, 324847, 286987, 197695, 251348,           00000670
BHSSR 0000 6 334331, 235877, 324847, 286987, 197695, 251348,           00000680
BHSSR 0000 7 334331, 235877, 324847, 286987, 197695, 251348,           00000690
BHSSR 0000 8 334331, 235877, 324847, 286987, 197695, 251348,           00000700
BHSSR 0000 9 334331, 235877, 324847, 286987, 197695, 251348,           00000710
BHSSR 000010 334331, 235877, 324847, 286987, 197695, 251348,           00000720
BHSSR 000011 334331, 235877, 324847, 286987, 197695, 251348,           00000730
BHSSR 000012 334331, 235877, 324847, 286987, 197695, 251348,           00000740
BHSSR 000013 334331, 235877, 324847, 286987, 197695, 251348,           00000750
BHSSR 000014 334331, 235877, 324847, 286987, 197695, 251348,           00000760
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BLAB  0000 2  17828,  11252,  17325,  12304,  8965,  15162,            00000780
BLAB  0000 3  17708,  11232,  17384,  12301,  8994,  14793,            00000790
BLAB  0000 4  17711,  11242,  17395,  12303,  8889,  14740,            00000800
BLAB  0000 5  18621,  11332,  17581,  12509,  9167,  15400,            00000810
BLAB  0000 6  18251,  11284,  17288,  20858,  9164,  14944,            00000820
BLAB  0000 7  18163,  11274,  17039,  20828,  9157,  15402,            00000830
BLAB  0000 8  18220,  11324,  17490,  12465,  9294,  15617,            00000840
BLAB  0000 9  18311,  12249,  17599,  12544,  9500,  15670,            00000850
BLAB  000010  18249,  12284,  17706,  12678,  9356,  15756,            00000860
BLAB  000011  17503,  12466,  18074,  12961,  9408,  15754,            00000870
BLAB  000012  18867,  11773,  18152,  12998,  9561,  16041,            00000880
BLAB  000013  18788,  11631,  18106,  12966,  9445,  16017,            00000890
BLAB  000014  18577,  11672,  17998,  12837,  9409,  16010,            00000900
BP    0000 12.64632 2.36195 2.39370 2.02789 2.08598 2.35280            00000910
BP    0000 22.88699 2.56692 2.64173 2.22662 2.30628 2.58861            00000920
BP    0000 32.85961 2.55656 2.63169 2.23233 2.28956 2.57954            00000930
BP    0000 43.06185 2.81459 2.87538 2.52219 2.52380 2.65793            00000940
BP    0000 53.25941 2.95220 3.06948 2.46276 2.66587 2.81853            00000950
BP    0000 63.39289 3.08773 3.16924 2.55957 2.76228 2.91471            00000960
BP    0000 72.46610 2.23917 2.32321 1.86813 2.03670 2.13492            00000970
BP    0000 84.33244 2.13060 2.18554 1.78987 1.93816 2.01286            00000980
BP    0000 93.21417 2.92981 3.00493 2.43331 2.66981 2.75180            00000990
BP    0000102.76310 2.81939 2.88321 2.07180 2.28308 2.36064            00001000
BP    0000113.01744 2.73492 2.83415 2.26060 2.49448 2.58577            00001010
BP    0000122.75071 2.40063 2.57755 2.06187 2.27030 2.35325            00001020
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NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE

BPAY	0000	1	0.76047	0.81495	0.66526	0.68369	0.81451	0.70249	00001030
BPAY	0000	2	0.75472	0.80802	0.66440	0.67842	0.80938	0.69709	00001040
BPAY	0000	3	0.79592	0.95159	0.70067	0.71548	0.85353	0.73514	00001050
BPAY	0000	4	0.79371	0.95463	0.69872	0.71348	0.85115	0.73310	00001060
BPAY	0000	5	0.79297	0.95404	0.69807	0.71282	0.85036	0.73242	00001070
BPAY	0000	6	0.80194	0.97414	0.69669	0.70266	0.86212	0.74066	00001080
BPAY	0000	7	0.79310	0.94362	0.68501	0.69482	0.85262	0.73250	00001090
BPAY	0000	8	0.77938	0.92730	0.67709	0.68280	0.83787	0.71983	00001100
BPAY	0000	9	0.76753	0.91319	0.66819	0.67242	0.82513	0.70888	00001110
BPAY	000010		0.77042	0.91663	0.66831	0.67495	0.82826	0.71159	00001120
BPAY	000011		0.76500	0.91018	0.66460	0.67020	0.82241	0.70654	00001130
BPAY	000012		0.75828	0.90219	0.65876	0.66431	0.81519	0.70034	00001140
BPAY	000013		0.75776	0.90157	0.65831	0.66386	0.81463	0.69986	00001150
BPAY	000014		0.75248	0.89526	0.65372	0.65923	0.80895	0.69498	00001160
BUNE	0000	1	7.25950	5.59298	5.80069	4.31870	5.46473	6.86826	00001170
BUNE	0000	2	6.77025	5.37682	5.21789	4.06372	5.17568	6.40670	00001180
BUNE	0000	3	6.55071	5.32407	5.14266	3.91838	5.11452	6.41520	00001190
BUNE	0000	4	6.48362	5.30050	5.25458	3.83154	5.03996	6.28180	00001200
BUNE	0000	5	7.10098	6.06248	5.57989	4.87649	5.06163	6.68484	00001210
BUNE	0000	6	7.82971	7.02640	6.75629	6.55863	6.77259	7.31397	00001220
BUNE	0000	7	7.85113	6.03150	6.63184	6.27521	5.72250	7.34969	00001230
BUNE	0000	8	7.22832	5.63171	6.36364	5.13638	5.17538	7.07562	00001240
BUNE	0000	9	6.69543	5.25757	5.06279	4.32079	4.52632	6.44215	00001250
BUNE	000010		6.47159	5.21817	5.12821	4.37766	4.70286	6.22699	00001260
BUNE	000011		6.78751	5.69545	5.59367	4.69100	4.76190	6.22699	00001270
BUNE	000012		7.15005	6.09870	6.10736	4.80964	5.25050	7.05062	00001280
BUNE	000013		6.83547	5.68016	5.83232	4.56579	5.01853	6.23712	00001290
BUNE	000014		6.79873	5.62886	5.11168	4.01963	4.82517	5.82136	00001300
BURB	0000	1	0.84064	0.57375	0.72322	0.60033	0.55989	0.81659	00001310
BURB	0000	2	0.84064	0.57375	0.72322	0.60033	0.55989	0.81659	00001320
BURB	0000	3	0.84064	0.57375	0.72322	0.60033	0.55989	0.81659	00001330
BURB	0000	4	0.84064	0.57375	0.72322	0.60033	0.55989	0.81659	00001340
BURB	0000	5	0.84064	0.57375	0.72322	0.60033	0.55989	0.81659	00001350
BURB	0000	6	0.85873	0.58632	0.73294	0.61457	0.69260	0.81813	00001360
BURB	0000	7	0.85873	0.58632	0.73294	0.61457	0.69260	0.81813	00001370
BURB	0000	8	0.85873	0.58632	0.73294	0.61457	0.69260	0.81813	00001380
BURB	0000	9	0.85873	0.58632	0.73294	0.61457	0.69260	0.81813	00001390
BURB	000010		0.85873	0.58632	0.73294	0.61457	0.69260	0.81813	00001400
BURB	000011		0.85873	0.58632	0.73294	0.61457	0.69260	0.81813	00001410
BURB	000012		0.85873	0.58632	0.73294	0.61457	0.69260	0.81813	00001420
BURB	000013		0.85873	0.58632	0.73294	0.61457	0.69260	0.81813	00001430
BURB	000014		0.85873	0.58632	0.73294	0.61457	0.69260	0.81813	00001440
BUPMN	0000	1	.602755	.457200	.546302	.633481	.481468	.594502	00001540
BUPMN	0000	2	.602755	.457200	.546302	.633481	.481468	.594502	00001550
BUPMN	0000	3	.595721	.418040	.579347	.625318	.472647	.622177	00001560
BUPMN	0000	4	.595721	.418040	.579347	.625318	.472647	.622177	00001570
BUPMN	0000	5	.595721	.418040	.579347	.625318	.472647	.622177	00001580
BUPMN	0000	6	.595721	.418040	.579347	.625318	.472647	.622177	00001590
BUPMN	0000	7	.595721	.418040	.579347	.625318	.472647	.622177	00001600
BUPMN	0000	8	.595721	.418040	.579347	.625318	.472647	.622177	00001610

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
BASE FILE

```
BUPMN 0000 2 .595721 .418040 .579347 .625318 .472647 .622177          00001620
BUPMN 000010 .595721 .418040 .579347 .625318 .472647 .622177          00001630
BUPMN 000011 .595721 .418040 .579347 .625318 .472647 .622177          00001640
BUPMN 000012 .595721 .418040 .579347 .625318 .472647 .622177          00001650
BUPMN 000013 .595721 .418040 .579347 .625318 .472647 .622177          00001660
BUPMN 000012 .595721 .418040 .579347 .625318 .472647 .622177          00001670
DEPATT0000 1  0.955                                                   00001680
ENDPCT000011   .0     8.60                                            00001690
ENDPCT000012   .0     6.60                                            00001700
GROW  000000 2.039                                                    00001710
LAMBDA000000  .0569                                                   00001720
RECAMT000000 1.063                                                    00001730
SCALE 000000  1.0     1.0                                             00001740
DEPF  0000 1  .302    .130    .100    .081    .043    .072    .020    00001750
DEPF  0000 2  .030    .163    .028    .020    .002                    00001760
```

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE (FY79, UPPER MENTAL, HSG)

```
DEPO  7900 1  6.62706                                                          00000010
ENLST 780011 0.23086 0.27221 0.21889 0.18584 0.22642 0.21944                   00000020
ENLST 780012 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944                   00000030
ENLST 7900 1 0.23086 0.27221 0.21889 0.18584 0.22642 0.21944                   00000040
ENLST 7900 2 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944                   00000050
ENLST 7900 3 0.23086 0.27221 0.21559 0.18584 0.22642 0.21944                   00000060
ENLST 7900 4 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                   00000070
ENLST 7900 5 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                   00000080
ENLST 7900 6 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                   00000090
ENLST 7900 7 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                   00000100
ENLST 7900 8 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                   00000110
ENLST 7900 9 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                   00000120
ENLST 7900 10 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                  00000130
ENLST 790011 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                   00000140
ENLST 790012 0.22480 0.27256 0.22007 0.18701 0.22824 0.20696                   00000150
HSSEN 780011 330363. 212292. 343660. 201977. 191668. 259900.                   00000160
HSSEN 780012 330363. 212292. 343660. 201977. 191668. 259900.                   00000170
HSSEN 7900 1 334331. 235877. 324847. 286987. 197695. 251348.                   00000180
HSSEN 7900 2 334331. 235877. 324847. 286987. 197695. 251348.                   00000190
HSSEN 7900 3 334331. 235877. 324847. 286987. 197695. 251348.                   00000200
HSSEN 7900 4 334331. 235877. 324847. 286987. 197695. 251348.                   00000210
HSSEN 7900 5 334331. 235877. 324847. 286987. 197695. 251348.                   00000220
HSSEN 7900 6 334331. 235877. 324847. 286987. 197695. 251348.                   00000230
HSSEN 7900 7 334331. 235877. 324847. 286987. 197695. 251348.                   00000240
HSSEN 7900 8 334331. 235877. 324847. 286987. 197695. 251348.                   00000250
HSSEN 7900 9 334331. 235877. 324847. 286987. 197695. 251348.                   00000260
HSSEN 790010 334331. 235877. 324847. 286987. 197695. 251348.                   00000270
HSSEN 790011 334331. 235877. 324847. 286987. 197695. 251348.                   00000280
HSSEN 790012 334331. 235877. 324847. 286987. 197695. 251348.                   00000290
LABOR 780011 18006. 11242. 17520. 12384. 8930. 15171.                          00000300
LABOR 790012 17828. 11252. 17325. 12304. 8965. 15156.                          00000430
LABOR 7900 1 17708. 11232. 17384. 12301. 8994. 14793.                          00000440
LABOR 7900 2 17711. 11245. 17325. 12303. 8989. 14749.                          00000450
LABOR 7900 3 18251. 11332. 17141. 12508. 9147. 15408.                          00000460
LABOR 7900 4 18251. 11286. 17258. 20858. 9164. 14944.                          00000470
LABOR 7900 5 18163. 11274. 17039. 20828. 9157. 15402.                          00000480
LABOR 7900 6 18220. 11324. 17490. 12465. 9294. 15617.                          00000490
LABOR 7900 7 18311. 12240. 17599. 12544. 9500. 15678.                          00000500
LABOR 7900 8 18249. 12284. 17706. 12678. 9356. 15754.                          00000510
LABOR 7900 9 17503. 12464. 18074. 12961. 9408. 15754.                          00000520
LABOR 790010 18867. 11773. 16152. 12995. 8561. 16041.                          00000530
LABOR 790011 18867. 11737. 18106. 12962. 8449. 16017.                          00000540
LABOR 790012 18577. 11672. 17998. 12837. 9409. 16010.                          00000550
PAYRAT780011 0.76047 0.91494 0.66946 0.60360 0.81551 0.70240                   00000560
PAYRAT780012 0.75172 0.90802 0.66540 0.67824 0.80934 0.69709                   00000570
PAYRAT7900 1 0.74342 0.95154 0.70067 0.71548 0.85343 0.73514                   00000580
PAYRAT7900 2 0.79371 0.95493 0.69872 0.71348 0.85115 0.73310                   00000590
PAYRAT7900 3 0.79297 0.95404 0.65807 0.71282 0.85036 0.73242                   00000600
PAYRAT7900 4 0.80195 0.95515 0.69669 0.70256 0.86212 0.74066                   00000610
PAYRAT7900 5 0.79310 0.94362 0.68501 0.69482 0.85262 0.73250                   00000620
```

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE

```
PAYRAT7900 6 0.77938 0.92130 0.67792 0.69289 0.83707 0.71983   00000630
PAYRAT7900 7 0.74785 0.91218 0.64478 0.67262 0.82514 0.70888   00000640
PAYRAT7900 8 0.77042 0.91663 0.66931 0.67495 0.82824 0.71155   00000650
PAYRAT7900 9 0.75900 0.91018 0.66460 0.67020 0.82241 0.70454   00000660
PAYRAT790010 0.75828 0.90219 0.65876 0.66431 0.81519 0.70032   00000670
PAYRAT790011 0.74772 0.90157 0.65031 0.66386 0.81463 0.69986   00000680
PAYRAT790012 0.75248 0.89529 0.65372 0.65923 0.80895 0.69498   00000690
PBLACK78001 1 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419   00000700
PBLACK78001 2 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419   00000710
PBLACK7900 1 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419   00000720
PBLACK7900 2 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419   00000730
PBLACK7900 3 0.10895 0.25853 0.13586 0.08019 0.15095 0.06419   00000740
PBLACK7900 4 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657   00000750
PBLACK7900 5 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657   00000760
PBLACK7900 6 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657   00000770
PBLACK7900 7 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657   00000780
PBLACK7900 8 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657   00000790
PBLACK7900 9 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657   00000800
PBLACK790010 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657   00000810
PBLACK790011 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657   00000820
PBLACK790012 0.11136 0.25953 0.13842 0.08138 0.15400 0.06657   00000830
PURBAN78001 1 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659   00000840
PURBAN78001 2 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659   00000850
PURBAN7900 1 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659   00000860
PURBAN7900 2 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659   00000870
PURBAN7900 3 0.84064 0.57375 0.72322 0.60033 0.55989 0.81659   00000880
PURBAN7900 4 0.85873 0.58632 0.73294 0.61457 0.6[illegible]260 0.81813   00000890
PURBAN7900 5 0.85873 0.58632 0.73294 0.61457 0.6[illegible] 0 0.81813   00000900
PURBAN7900 6 0.85873 0.58632 0.73294 0.61457 0.6[illegible] 0 0.81813   00000910
PURBAN7900 7 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00000920
PURBAN7900 8 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00000930
PURBAN7900 9 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00000940
PURBAN790010 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00000950
PURBAN790011 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00000960
PURBAN790012 0.85873 0.58632 0.73294 0.61457 0.69260 0.81813   00000970
UNEMP 78001 1 7.25950 5.69298 5.80069 4.31870 5.46473 6.84826   00000980
UNEMP 78001 2 6.77025 5.37682 5.21789 4.06372 5.17368 6.70670   00000990
UNEMP 7900 1 6.68071 5.32405 5.14246 3.91838 5.11752 6.21920   00001000
UNEMP 7900 2 6.45362 5.39050 5.25438 4.03154 5.03994 6.48180   00001010
UNEMP 7900 3 7.10098 6.06248 5.87989 4.87649 5.06163 6.68484   00001020
UNEMP 7900 4 7.82971 7.02640 6.75629 6.55863 5.77259 7.31397   00001030
UNEMP 7900 5 7.85113 6.03188 6.63184 6.27521 5.72260 7.34969   00001040
UNEMP 7900 6 7.22832 5.65171 6.36364 5.13438 5.17538 7.07562   00001050
UNEMP 7900 7 6.69543 5.25151 5.06279 4.32079 4.52632 6.44215   00001060
UNEMP 7900 8 6.57159 5.21817 5.12821 4.31766 4.70286 6.22699   00001070
UNEMP 7900 9 6.70121 5.69866 5.59361 4.69180 4.76190 6.22699   00001080
UNEMP 790010 7.15005 6.09870 5.70736 4.80954 5.25050 7.05068   00001090
UNEMP 790011 6.83967 5.68016 5.87232 4.56579 5.01853 6.23712   00001100
UNEMP 790012 6.79017 5.67286 5.11738 4.01573 4.82171 5.82136   00001110
UNEMP 78001 -.602135 -.457200 -.546302 -.633481 -.481468 -.596502   00001120
```

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
SCENARIO FILE

UPHEN	790012	.602755	.457200	.546302	.633401	.481268	.594502			00001250
UPHEN	7900 1	.595721	.418040	.579347	.625318	.472647	.622177			00001260
UPHEN	7900 2	.595721	.418040	.579347	.625318	.472647	.622177			00001270
UPHEN	7900 3	.595721	.418040	.579347	.625318	.472647	.622177			00001280
UPHEN	7900 4	.595721	.418040	.579347	.625318	.472647	.622177			00001290
UPHEN	5900 5	.595721	.418040	.579347	.625318	.472647	.622177			00001300
UPHEN	7900 6	.595721	.418040	.579347	.625318	.472647	.622177			00001310
UPHEN	7700 9	.595721	.418040	.579347	.625318	.472647	.622177			00001320
UPHEN	7900 8	.595721	.418040	.579347	.625318	.472647	.622177			00001330
UPHEN	7900 8	.595721	.418040	.579347	.625318	.472647	.622177			00001340
UPHEN	790010	.595721	.418040	.579347	.625318	.472647	.622177			00001350
UPHEN	790011	.595721	.418040	.579347	.625318	.472647	.622177			00001360
UPHEN	790012	.595721	.418040	.579347	.625318	.472647	.622177			00001370
Q	7900 1	3.809	3.217	2.338	3.259	2.720	2.606	2.519		00001380
Q	7900 2	2.771	4.693	4.635	4.577	4.520	1.999	0.858		00001390
Q	7900 3	0.682	0.536	0.285	0.476	0.192	0.199	1.088		00001400
Q	7900 4	0.662	0.132	0.013						00001410
QR	7900 1	1.166	0.828	1.147	0.830	0.691	0.981			00001420
QR	7900 2	1.010	0.785	0.972	0.700	0.582	0.826			00001430
QR	7900 3	0.741	0.569	0.703	0.506	0.417	0.607			00001440
QR	7900 4	1.026	0.796	0.982	0.707	0.589	0.838			00001450
QR	7900 5	0.850	0.666	0.825	0.594	0.491	0.698			00001460
QR	7900 6	0.822	0.636	0.781	0.572	0.466	0.672			00001470
QR	7900 7	0.795	0.615	0.763	0.548	0.452	0.644			00001480
QR	7900 8	0.873	0.664	0.839	0.620	0.499	0.704			00001490
QR	7900 9	1.446	1.053	1.396	1.126	0.846	1.163			00001500
QR	790010	1.446	1.057	1.394	1.118	0.844	1.164			00001510
QR	790011	1.439	1.055	1.380	1.090	0.831	1.140			00001520
QR	790012	1.421	1.021	1.363	1.108	0.820	1.116			00001530
QR	790013	0.365	0.212	0.287	0.359	0.312	0.318			00001540
QR	790014	0.234	0.264	0.294	0.157	0.136	0.223			00001550
QR	790015	0.180	0.203	0.228	0.111	[illegible]	0.171			00001560
QR	790016	0.145	0.164	0.184	0.095	[illegible]	0.139			00001570
QR	790017	0.077	0.087	0.099	0.050	0.045	0.074			00001580
QR	790018	0.130	0.146	0.164	0.084	0.075	0.123			00001590
QR	790019	0.052	0.059	0.066	0.034	0.030	0.050			00001600
QR	790020	0.053	0.061	0.068	0.03[illegible]	0.031	0.051			00001610
QR	790021	0.295	0.333	0.375	0.191	0.172	0.281			00001620
QR	790022	0.050	0.057	0.064	0.033	0.029	0.048			00001630
QR	790023	0.036	0.041	0.046	0.023	0.021	0.034			00001640
QR	790024	0.002	0.002	0.002	0.002	0.002	0.003			00001650
QUP	7900 1	9.500	9.500	9.500	9.500	9.500	9.500	9.500		00001780
QUP	7900 2	9.500	9.500	9.500	9.500	9.500	9.500	9.500		00001790
QUP	7900 3	9.500	9.500	9.500	9.500	9.500	9.500	9.500		00001800
QUP	7900 4	9.500	9.500	9.500						00001810
TOTALQ	7900 1	36.063								00001820
N	79 1	1.000	1.000	0.000	0.00	0.00	0.000	0.100		00000020

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
LISTING OF INPUT DATA
RESULTS FILE (INITIALIZATION OF FY79, UPPER MENTAL, HS6b)

```
XO    780000   .650    .574    .636    .490    .411    .631
VO    78 1 1   .0225   .0196   .0301   .0196   .0163   .0249
VO    78 1 2   .0225   .0196   .0301   .0196   .0163   .0249
VO    78 2 1   .0780   .0270   .0630   .0420   .0320   .0400
VO    78 2 2   .0880   .0190   .0240   .0750   .0610   .0710
DEPR  780000  1.282   1.447   1.622   0.832   0.745   1.222
END   78
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READING OF INPUT DATA COMPLETE.

MATRIX GENERATION COMPLETE.
1006 CARDS WRITTEN TO SCRATCH FILE NUMBER 12

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
SUMMARY REPORT FOR ALL AREAS

(UPPER MENTAL HSG, FY79)

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	2.0621	0.0004	0.0744	0.0004	0.0011	0.0833	0.4839	0.0424	0.1425	0.2413
RECRUITING	36.7631	3.0636	3.0636	3.0636	3.0636	3.0636	3.0636	3.0636	3.0636	3.0636
TOTAL COST (MILLION $)	38.8252	3.0640	3.1380	3.0640	3.0647	3.1469	3.5475	3.1060	3.2061	3.3049
CONTRACTS	37.3412	2.4005	3.2471	2.3988	2.8169	3.5193	3.9377	2.6367	2.5959	3.6498
INITIAL DELAY ENTRY POOL	6.8282	2.0621	0.8877	0.6828	0.5531	0.2936	0.4916	0.1980	0.2048	1.1130
ACCESSIONS	29.3335	1.1258	1.6631	1.8204	1.7248	1.7207	1.9638	1.6475	2.0823	3.8592
TOTAL ACCESSIONS	36.1607	3.1880	2.5507	2.0032	2.2779	2.0143	2.5555	1.8456	2.2872	4.9722
QUOTAS	41.6720	3.6000	3.2170	2.3380	3.2590	2.7280	2.6060	2.5190	2.7710	6.6830
SHORTFALLS	5.7905	0.4210	0.6663	0.3348	0.9811	0.7137	0.1505	0.6734	0.4838	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
SUMMARY REPORT FOR ALL AREAS

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	2.0621	0.1403	0.3864	0.4657						
RECRUITING	36.7631	3.0636	3.0636	3.0636						
TOTAL COST (MILLION $)	38.8252	3.2039	3.4500	3.5293						
CONTRACTS	37.3412	3.0777	3.6761	3.3886						
INITIAL DELAY ENTRY POOL	6.8282	0.1912	0.1366	0.0137	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	29.8325	3.9331	4.3573	3.9344	2.0588	0.9961	0.6150	0.5451	0.3017	0.3011
TOTAL ACCESSIONS	36.1607	4.1243	4.4939	3.9481	2.0588	0.9961	0.6150	0.5451	0.3017	0.3011
QUOTAS	41.6720	4.6350	4.5770	4.5200	1.0990	0.8580	0.6820	0.5360	0.2850	0.4760
SHORTFALLS	5.7905	0.5107	0.0831	0.5719	0.0	0.0	0.0670	0.0	0.0	0.1749

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
SUMMARY REPORT FOR ALL AREAS

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	2.0621						
RECRUITING	36.7631						
TOTAL COST (MILLION $)	38.8252						
CONTRACTS	37.3412						
INITIAL DELAY ENTRY-POOL	6.8282	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	29.3325	0.1863	0.1904	1.1079	0.1828	0.1266	0.0145
TOTAL ACCESSIONS	36.1607	0.1863	0.1904	1.1079	0.1828	0.1266	0.0145
QUOTAS	41.6720	0.1920	0.1990	1.0880	0.6620	0.1220	0.0130
SHORTFALLS	5.7905	0.0057	0.0086	0.0	0.4792	0.0056	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
CONTRACTS FOR REGION 1	22.8360	1.2101	2.0359	1.2609	1.5871	2.2184	2.5912	1.6497	1.6618	2.3656
CONTRACTS FOR REGION 2	5.1231	0.3847	0.3953	0.3730	0.4107	0.4307	0.4461	0.3267	0.3108	0.4275
CONTRACTS FOR REGION 3	3.6175	0.3029	0.3084	0.2903	0.3172	0.3386	0.3496	0.2563	0.2411	0.3314
CONTRACTS FOR REGION 4	1.3430	0.1202	0.1182	0.1119	0.1164	0.1235	0.1283	0.0937	0.0882	0.1220
CONTRACTS FOR REGION 5	2.0778	0.1727	0.1759	0.1656	0.1823	0.1926	0.1996	0.1471	0.1401	0.1929
CONTRACTS FOR REGION 6	2.3439	0.2099	0.2094	0.1972	0.2032	0.2155	0.2229	0.1633	0.1539	0.2104
TOTAL (1000'S)	37.3412	2.4005	3.2431	2.3988	2.8169	3.5193	3.9377	2.6367	2.5959	3.6498
ACCESSIONS FOR REGION 1	19.1056	0.9373	1.1706	0.8444	1.0676	1.0922	1.3351	1.0754	1.3508	2.6248
ACCESSIONS FOR REGION 2	5.3452	0.5878	0.3824	0.3340	0.3621	0.2850	0.3369	0.2412	0.2963	0.7006
ACCESSIONS FOR REGION 3	4.4325	0.6098	0.3677	0.3075	0.3196	0.2429	0.2974	0.2025	0.2451	0.6224
ACCESSIONS FOR REGION 4	1.8685	0.2963	0.1675	0.1384	0.1373	0.0992	0.1256	0.0809	0.0969	0.2666
ACCESSIONS FOR REGION 5	2.3664	0.2959	0.1874	0.1582	0.1688	0.1312	0.1573	0.1108	0.1358	0.3294
ACCESSIONS FOR REGION 6	3.0424	0.4509	0.2651	0.2206	0.2225	0.1638	0.2033	0.1347	0.1625	0.4285
TOTAL (1000'S)	36.1607	3.1880	2.5507	2.0032	2.2779	2.0143	2.4555	1.8456	2.2872	4.9722
QUOTAS	36.0630	3.8090	3.217	2.3380	3.2590	2.7280	2.6060	2.5190	2.7710	4.6930
SHORTFALLS	0.0	0.6210	0.6663	0.3348	0.9811	0.7137	0.1505	0.6734	0.4838	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
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	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79
CONTRACTS FOR REGION 1	22.8359	1.9758	2.2366	2.0645
CONTRACTS FOR REGION 2	5.1231	0.3676	0.6376	0.6124
CONTRACTS FOR REGION 3	3.6175	0.2849	0.3126	0.2843
CONTRACTS FOR REGION 4	1.3430	0.1039	0.1133	0.1034
CONTRACTS FOR REGION 5	2.0278	0.1649	0.1802	0.1640
CONTRACTS FOR REGION 6	2.3439	0.1805	0.1977	0.1799
TOTAL (1000'S)	37.3612	3.0777	3.6761	3.3886
ACCESSIONS FOR REGION 1	19.1056	2.4789	2.7149	2.4135
ACCESSIONS FOR REGION 2	5.3652	0.5319	0.6572	0.6100
ACCESSIONS FOR REGION 3	4.4325	0.4274	0.4321	0.3581
ACCESSIONS FOR REGION 4	1.8685	0.1646	0.1636	0.1317
ACCESSIONS FOR REGION 5	2.3664	0.2411	0.2449	0.2058
ACCESSIONS FOR REGION 6	3.0424	0.2805	0.2812	0.2289
TOTAL (1000'S)	36.1607	4.1243	4.4939	3.9481
QUOTAS	36.0630	4.6350	4.5770	4.5200
SHORTFALLS	0.0	0.5107	0.0831	0.5719

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR POST-HORIZON	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80	APR 80	MAY 80	JUN 80
ACCESSIONS FOR REGION 1	6.1121	1.2595	0.6226	0.3861	0.3398	0.1890	0.1921	0.1188	0.1176	0.6879
ACCESSIONS FOR REGION 2	0.9730	0.3067	0.1399	0.0868	0.0788	0.0429	0.0395	0.0237	0.0302	0.1710
ACCESSIONS FOR REGION 3	0.5981	0.1910	0.0907	0.0551	0.0491	0.0271	0.0269	0.0170	0.0165	0.0967
ACCESSIONS FOR REGION 4	0.2184	0.0699	0.0331	0.0202	0.0179	0.0099	0.0099	0.0062	0.0060	0.0352
ACCESSIONS FOR REGION 5	0.3448	0.1099	0.0521	0.0317	0.0284	0.0156	0.0156	0.0098	0.0095	0.0559
ACCESSIONS FOR REGION 6	0.3802	0.1218	0.0577	0.0351	0.0312	0.0172	0.0171	0.0108	0.0105	0.0612
TOTAL (1000'S)	6.6266	2.0588	0.9961	0.6150	0.5451	0.3017	0.3011	0.1863	0.1904	1.1079
QUOTAS	6.6270	1.9990	0.8580	0.6820	0.5360	0.2850	0.4760	0.1920	0.1990	1.0880
SHORTFALLS	0.0004	0.0	0.0	0.0670	0.0	0.0	0.1749	0.0057	0.0086	0.0

NAVY RECRUITING COMMAND

RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION

	TOTAL FOR POST-HORIZON	JUL 80	AUG 80	SEP 80
ACCESSIONS FOR REGION 1	6.1121	0.1130	0.0769	0.0088
ACCESSIONS FOR REGION 2	0.9730	0.0289	0.0221	0.0024
ACCESSIONS FOR REGION 3	0.5981	0.0159	0.0107	0.0012
ACCESSIONS FOR REGION 4	0.2184	0.0058	0.0039	0.0004
ACCESSIONS FOR REGION 5	0.3468	0.0092	0.0062	0.0007
ACCESSIONS FOR REGION 6	0.3802	0.0101	0.0068	0.0008
TOTAL (1000'S)	6.6266	0.1828	0.1266	0.0145
QUOTAS	6.6270	0.6620	0.1320	0.0130
SHORTFALLS	0.0004	0.4792	0.0054	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION (UPPER MENTAL, HSG)
DETAILED REPORT FOR AREA 1

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	1.7502	0.0001	0.0741	0.0001	0.0008	0.0830	0.4836	0.0421	0.1422	0.2410
RECRUITING	22.5838	1.8820	1.8820	1.8820	1.8820	1.8820	1.8820	1.8820	1.8820	1.8820
TOTAL COST (MILLION $)	24.3340	1.8820	1.9561	1.8820	1.8828	1.9650	2.3656	1.9241	2.0242	2.1230
CONTRACTS	22.8359	1.2101	2.0359	1.2609	1.5871	2.2184	2.5912	1.6497	1.6618	2.3656
INITIAL DELAY ENTRY POOL	1.2243	0.3697	0.1592	0.1224	0.0992	0.0526	0.0882	0.0355	0.0367	0.1996
ACCESSIONS	17.8812	0.5676	1.0115	0.7220	0.9685	1.0395	1.2469	1.0399	1.3140	2.4252
TOTAL ACCESSIONS	19.1056	0.9373	1.1706	0.8444	1.0676	1.0922	1.3351	1.0754	1.3508	2.6248
QUOTAS	13.0680	1.1940	1.0100	0.7410	1.0220	0.8590	0.8220	0.7950	0.8730	1.4460
SHORTFALLS	0.2567	0.2567	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 1

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	1.7502	0.1400	0.2676	0.2756						
RECRUITING	22.5838	1.8820	1.8820	1.8820						
TOTAL COST (MILLION $)	26.3360	2.0220	2.1496	2.1576						
CONTRACTS	22.8359	1.9758	2.2346	2.0445						
INITIAL DELAY ENTRY POOL	1.2243	0.0343	0.0245	0.0024	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	17.8812	2.4446	2.6904	2.4111	1.2595	0.6226	0.3861	0.3398	0.1890	0.1921
TOTAL ACCESSIONS	19.1056	2.4789	2.7149	2.4135	1.2595	0.6226	0.3861	0.3398	0.1890	0.1921
QUOTAS	13.0680	1.4460	1.4390	1.4210	0.5430	0.2360	0.1800	0.1450	0.0270	0.1300
SHORTFALLS	0.2567	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 1

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	1.7502						
RECRUITING	22.5838						
TOTAL COST (MILLION $)	24.3340						
CONTRACTS	22.8359						
INITIAL DELAY ENTRY POOL	1.2243	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	17.8812	0.1188	0.1176	0.6879	0.1130	0.0769	0.0088
TOTAL ACCESSIONS	19.1056	0.1188	0.1176	0.6879	0.1130	0.0769	0.0088
QUOTAS	13.0680	0.0520	0.0530	0.2950	0.0500	0.0360	0.0040
SHORTFALLS	0.2567	0.0	0.0	0.0	0.0	0.0	0.0

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 2

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	0.3090	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
RECRUITING	5.2115	0.4343	0.4343	0.4343	0.4343	0.4343	0.4343	0.4343	0.4343	0.4343
TOTAL COST (MILLION $)	5.5205	0.4344	0.4344	0.4344	0.4344	0.4344	0.4344	0.4344	0.4344	0.4344
CONTRACTS	5.1231	0.3847	0.3953	0.3730	0.4107	0.4307	0.4461	0.3267	0.3108	0.4275
INITIAL DELAY ENTRY POOL	1.3819	0.4173	0.1796	0.1382	0.1119	0.0594	0.0995	0.0401	0.0415	0.2252
ACCESSIONS	3.9634	0.1804	0.2128	0.1958	0.2501	0.2256	0.2374	0.2011	0.2548	0.4753
TOTAL ACCESSIONS	5.3452	0.5978	0.3924	0.3340	0.3621	0.2850	0.3369	0.2412	0.2963	0.7006
QUOTAS	9.8450	0.9280	0.7850	0.5690	0.7960	0.6660	0.6360	0.6150	0.6640	1.0530
SHORTFALLS	4.4998	0.3302	0.3926	0.2350	0.4339	0.3810	0.2991	0.3738	0.3677	0.3524

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 2

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	0.3090	0.0001	0.1186	0.1898						
RECRUITING	5.2115	0.4343	0.4343	0.4343						
TOTAL COST (MILLION $)	5.5205	0.4344	0.5528	0.6241						
CONTRACTS	5.1231	0.3676	0.6376	0.6124						
INITIAL DELAY ENTRY POOL	1.3819	0.0387	0.0276	0.0028	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	3.9636	0.4932	0.6296	0.6072	0.3067	0.1399	0.0868	0.0788	0.0429	0.0395
TOTAL ACCESSIONS	5.3452	0.5319	0.6572	0.6100	0.3067	0.1399	0.0868	0.0788	0.0429	0.0395
QUOTAS	9.8460	1.0870	1.0550	1.0210	0.6120	0.2640	0.2030	0.1640	0.0870	0.1460
SHORTFALLS	4.6998	0.5251	0.3978	0.4110	0.3053	0.1241	0.1162	0.0852	0.0441	0.1065

RECRUITING DISTRIBUTION STUDY - OPTIMIZATION
DETAILED REPORT FOR AREA 2

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	0.3090						
RECRUITING	5.2115						
TOTAL COST (MILLION $)	5.5205						
CONTRACTS	5.1231						
INITIAL DELAY ENTRY POOL	1.3819	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	3.9634	0.0237	0.0302	0.1710	0.0289	0.0221	0.0026
TOTAL ACCESSIONS	5.3452	0.0237	0.0302	0.1710	0.0289	0.0221	0.0026
QUOTAS	9.8450	0.0590	0.0610	0.3330	0.0570	0.0410	0.0060
SHORTFALLS	4.6998	0.0353	0.0308	0.1620	0.0281	0.0189	0.0034

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 3

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	0.0007	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
RECRUITING	3.5660	0.2972	0.2972	0.2972	0.2972	0.2972	0.2972	0.2972	0.2972	0.2972
TOTAL COST (MILLION $)	3.5667	0.2972	0.2972	0.2972	0.2972	0.2972	0.2972	0.2972	0.2972	0.2972
CONTRACTS	3.6175	0.3029	0.3084	0.2903	0.3172	0.3386	0.3496	0.2563	0.2411	0.3314
INITIAL DELAY ENTRY POOL	1.5490	0.4678	0.2014	0.1549	0.1255	0.0666	0.1115	0.0449	0.0465	0.2525
ACCESSIONS	2.8835	0.1420	0.1663	0.1526	0.1861	0.1763	0.1858	0.1576	0.1986	0.3699
TOTAL ACCESSIONS	5.4325	0.6098	0.3677	0.3075	0.3196	0.2429	0.2974	0.2025	0.2451	0.6224
QUOTAS	12.5680	1.1470	0.9720	0.7030	0.9850	0.8250	0.7810	0.7630	0.8390	1.3960
SHORTFALLS	8.1155	0.5372	0.6043	0.3955	0.6654	0.5821	0.4836	0.5605	0.5939	0.7736

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 3

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	0.0007	0.0001	0.0001	0.0001						
RECRUITING	3.5660	0.2972	0.2972	0.2972						
TOTAL COST (MILLION $)	3.5667	0.2972	0.2972	0.2972						
CONTRACTS	3.6175	0.2849	0.3126	0.2843						
INITIAL DELAY ENTRY POOL	1.5490	0.0434	0.0310	0.0031	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	2.8835	0.3840	0.4011	0.3550	0.1910	0.0907	0.0551	0.0491	0.0271	0.0269
TOTAL ACCESSIONS	4.4325	0.4274	0.4321	0.3581	0.1910	0.0907	0.0551	0.0491	0.0271	0.0269
QUOTAS	12.5480	1.3940	1.3800	1.3630	0.6870	0.2960	0.2280	0.1840	0.0990	0.1640
SHORTFALLS	8.1155	0.9666	0.9479	1.0049	0.4960	0.2033	0.1729	0.1349	0.0719	0.1371

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 3

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	0.0007						
RECRUITING	3.5460						
TOTAL COST (MILLION $)	3.5467						
CONTRACTS	3.6175						
INITIAL DELAY ENTRY POOL	1.5490	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	2.8835	0.0170	0.0165	0.0967	0.0159	0.0107	0.0012
TOTAL ACCESSIONS	4.4325	0.0170	0.0165	0.0967	0.0159	0.0107	0.0012
QUOTAS	12.5480	0.0660	0.0680	0.3730	0.0640	0.0460	0.0050
SHORTFALLS	8.1155	0.0490	0.0515	0.2763	0.0481	0.0353	0.0038

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 6

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	0.0007	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
RECRUITING	1.2238	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020
TOTAL COST (MILLION $)	1.2245	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020	0.1020
CONTRACTS	1.3430	0.1202	0.1182	0.1119	0.1164	0.1235	0.1283	0.0937	0.0882	0.1220
INITIAL DELAY ENTRY POOL	0.7946	0.2400	0.1033	0.0795	0.0644	0.0342	0.0572	0.0230	0.0238	0.1295
ACCESSIONS	1.0740	0.0564	0.0642	0.0590	0.0730	0.0650	0.0684	0.0579	0.0730	0.1370
TOTAL ACCESSIONS	1.8685	0.2963	0.1675	0.1384	0.1373	0.0992	0.1256	0.0809	0.0969	0.2666
QUOTAS	9.5210	0.8300	0.7000	0.5060	0.7090	0.5960	0.5720	0.5480	0.6200	1.1260
SHORTFALLS	7.6525	0.5337	0.5325	0.3676	0.5717	0.4948	0.4464	0.4671	0.5231	0.8594

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 4

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	0.0007	0.0001	0.0001	0.0001						
RECRUITING	1.2238	0.1020	0.1020	0.1020						
TOTAL COST (MILLION $)	1.2245	0.1020	0.1020	0.1020						
CONTRACTS	1.3430	0.1039	0.1133	0.1034						
INITIAL DELAY	0.7946	0.0222	0.0159	0.0016	0.0	0.0	0.0	0.0	0.0	0.0
ENTRY POOL										
ACCESSIONS	1.0740	0.1423	0.1477	0.1301	0.0699	0.0331	0.0202	0.0179	0.0099	0.0099
TOTAL ACCESSIONS	1.0685	0.1646	0.1636	0.1317	0.0699	0.0331	0.0202	0.0179	0.0099	0.0099
QUOTAS	9.5210	1.1180	1.0900	1.1080	0.3530	0.1520	0.1170	0.0950	0.0500	0.0840
SHORTFALLS	7.6525	0.9534	0.9264	0.9763	0.2831	0.1189	0.0968	0.0771	0.0401	0.0741

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 4

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	0.0007						
RECRUITING	1.2238						
TOTAL COST (MILLION $)	1.2245						
CONTRACTS	1.3430						
INITIAL DELAY ENTRY POOL	0.7946	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	1.0740	0.0062	0.0060	0.0352	0.0058	0.0039	0.0004
TOTAL ACCESSIONS	1.8665	0.0062	0.0060	0.0352	0.0058	0.0039	0.0004
QUOTAS	0.5210	0.0340	0.0350	0.1910	0.0330	0.0230	0.0020
SHORTFALLS	7.6525	0.0278	0.0290	0.1558	0.0272	0.0191	0.0016

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	0.0007	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
RECRUITING	2.0086	0.1674	0.1674	0.1674	0.1674	0.1674	0.1674	0.1674	0.1674	0.1674
TOTAL COST (MILLION $)	2.0093	0.1674	0.1674	0.1674	0.1674	0.1674	0.1674	0.1674	0.1674	0.1674
CONTRACTS	2.0778	0.1727	0.1759	0.1654	0.1823	0.1926	0.1996	0.1471	0.1401	0.1929
INITIAL DELAY ENTRY POOL	0.7115	0.2149	0.0925	0.0711	0.0576	0.0306	0.0512	0.0206	0.0213	0.1160
ACCESSIONS	1.6550	0.0810	0.0949	0.0870	0.1112	0.1006	0.1060	0.0902	0.1144	0.2134
TOTAL ACCESSIONS	2.3664	0.2959	0.1874	0.1582	0.1688	0.1312	0.1573	0.1108	0.1358	0.3294
QUOTAS	7.5280	0.6910	0.5820	0.4170	0.5890	0.6910	0.4660	0.4520	0.4990	0.8460
SHORTFALLS	5.1616	0.3951	0.3946	0.2588	0.4202	0.3598	0.3087	0.3412	0.3632	0.5.66

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	0.0007	0.0001	0.0001	0.0001						
RECRUITING	2.0086	0.1674	0.1674	0.1674						
TOTAL COST (MILLION $)	2.0093	0.1676	0.1676	0.1676						
CONTRACTS	2.0778	0.1649	0.1802	0.1640						
INITIAL DELAY ENTRY POOL	0.7115	0.0199	0.0142	0.0014	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	1.6550	0.2212	0.2307	0.2044	0.1099	0.0521	0.0317	0.0284	0.0156	0.0156
TOTAL ACCESSIONS	2.3664	0.2411	0.2449	0.2058	0.1099	0.0521	0.0317	0.0284	0.0156	0.0156
QUOTAS	7.5280	0.8440	0.8310	0.8200	0.3160	0.1360	0.1040	0.0850	0.0450	0.0750
SHORTFALLS	5.1616	0.6029	0.5861	0.6142	0.2061	0.0839	0.0723	0.0566	0.0294	0.0594

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 5

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	0.0007						
RECRUITING	2.0086						
TOTAL COST (MILLION $)	2.0093						
CONTRACTS	2.0778						
INITIAL DELAY ENTRY POOL	0.7115	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	1.6550	0.0098	0.0095	0.0559	0.0092	0.0062	0.0007
TOTAL ACCESSIONS	2.3664	0.0098	0.0095	0.0559	0.0092	0.0062	0.0007
QUOTAS	7.5280	0.0300	0.0310	0.1720	0.0200	0.0210	0.0020
SHORTFALLS	5.1616	0.0202	0.0215	0.1161	0.0108	0.0148	0.0013

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 6

	TOTAL FOR HORIZON	OCT 78	NOV 78	DEC 79	JAN 79	FEB 79	MAR 79	APR 79	MAY 79	JUN 79
ADVERTISING	0.0007	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
RECRUITING	2.1695	0.1808	0.1808	0.1808	0.1808	0.1808	0.1808	0.1808	0.1808	0.1808
TOTAL COST (MILLION $)	2.1702	0.1808	0.1808	0.1808	0.1808	0.1808	0.1808	0.1808	0.1808	0.1808
CONTRACTS	2.3439	0.2099	0.2094	0.1972	0.2032	0.2155	0.2229	0.1633	0.1539	0.2104
INITIAL DELAY ENTRY POOL	1.1670	0.3524	0.1517	0.1167	0.0945	0.0502	0.0840	0.0338	0.0350	0.1902
ACCESSIONS	1.8756	0.0986	0.1134	0.1039	0.1280	0.1137	0.1192	0.1009	0.1274	0.2383
TOTAL ACCESSIONS	3.0424	0.4509	0.2651	0.2206	0.2225	0.1638	0.2033	0.1347	0.1625	0.4285
QUOTAS	10.5530	0.9810	0.8260	0.6070	0.8380	0.6980	0.6720	0.6440	0.7040	1.1630
SHORTFALLS	7.5106	0.5301	0.5609	0.3866	0.6155	0.5342	0.4687	0.5093	0.5415	0.7345

NAVY RECRUITING COMMAND
RECRUITING/ADVERTISING EXPENDITURE OPTIMIZATION
DETAILED REPORT FOR AREA 6

	TOTAL FOR HORIZON	JUL 79	AUG 79	SEP 79	OCT 79	NOV 79	DEC 80	JAN 80	FEB 80	MAR 80
ADVERTISING	0.0007	0.0001	0.0001	0.0001						
RECRUITING	2.1695	0.1808	0.1808	0.1808						
TOTAL COST (MILLION $)	2.1702	0.1808	0.1808	0.1808						
CONTRACTS	2.3439	0.1805	0.1977	0.1799						
INITIAL DELAY ENTRY POOL	1.1670	0.0327	0.0233	0.0023	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	1.8754	0.2478	0.2578	0.2266	0.1218	0.0577	0.0351	0.0312	0.0172	0.0171
TOTAL ACCESSIONS	3.0424	0.2805	0.2812	0.2289	0.1218	0.0577	0.0351	0.0312	0.0172	0.0171
QUOTAS	10.5530	1.1640	1.1600	1.1160	0.5190	0.2230	0.1710	0.1390	0.0740	0.1230
SHORTFALLS	7.5106	0.8835	0.8788	0.8871	0.3972	0.1653	0.1359	0.1078	0.0568	0.1059

NAVY RECRUITING COMMAND
RECRUITING/ADV. RTS EXPENDITURE OPTIMIZATION
DETAILED ML CRT FOR AREA 6

	TOTAL FOR HORIZON	APR 80	MAY 80	JUN 80	JUL 80	AUG 80	SEP 80
ADVERTISING	0.0007						
RECRUITING	2.1695						
TOTAL COST (MILLION $)	2.1702						
CONTRACTS	2.3639						
INITIAL DELAY ENTRY POOL	1.1670	0.0	0.0	0.0	0.0	0.0	0.0
ACCESSIONS	1.8754	0.0108	0.0105	0.0612	0.0101	0.0068	0.0008
TOTAL ACCESSIONS	3.0424	0.0108	0.0105	0.0612	0.0101	0.0068	0.0008
QUOTAS	10.5530	0.0500	0.0510	0.2810	0.0480	0.0340	0.0030
SHORTFALLS	7.5106	0.0392	0.0405	0.2198	0.0379	0.0272	0.0022

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REPORT DOCUMENTATION PAGE

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5. TYPE OF REPORT & PERIOD COVERED:

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7. AUTHOR(s): Richard C. Morey

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18. SUPPLEMENTARY NOTES: Supported by the Naval Research Manpower R&D Program.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number): Budget, Planning, Scenarios, Multi-Year, Accession Quotas, Demographics, Delayed Entry Pool, Optimization, Recruiters, Advertising

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This research describes and illustrates a non-linear optimization approach, installed at Navy Headquarters for generating the minimum budget to meet the various accession quotas. It can be operated for a multi-year scenario and meets yearly or monthly requirements for quality accessions and for the size of the Delayed Entry Pool. It splits the derived budget between the recruiters and advertising, allocates the recruiters to districts, determines the geographical mis and timing of advertising expenditures and generates the optimal flow of enlistment contracts. It can be used to help explore the inputs of varying

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quotas, initial conditions, economic scenarios, cost per recruiter, attraction in the Delayed Entry Program, and demographics. Budget runs for FY79 are included.

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